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BY ARTHUR YOUNG, ESQ. F.R.S.

SECRETARY TO THE BOARD OF AGRICULTURE; HONORARY MEMBER OF THE SOCIETIES OF DUBLIN, BATH, YORK, SALFORD, ODIHAM, AND KENT; THE PHILOSOPHICAL AND LITERARY SOCIETY OF MANCHESTER; THE VETERINARY COLLEGE OF LONDON; THE ECONOMICAL SOCIETY OF BERNE; THE PHYSICAL SOCIETY OF ZURICH; THE PALATINE ACADEMY OF AGRICULTURE AT MANHEIM; THE IMPERIAL ECONOMICAL SOCIETY ESTABLISHED AT PETERSBURGH; THE ROYAL AND ELECTORAL ECONOMICAL SOCIETY OF CELLE; ASSOCIATE OF THE ROYAL SOCIETY OF AGRICULTURE AT PARIS; AND CORRESPONDING MEMBER OF THE ROYAL ACADEMY OF AGRICULTURE AT FLORENCE; AND OF THE PATRIOTIC SOCIETY AT MILAN.

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ЛИЛЕВЯЦА
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ПВКУВА

TRAVELS, &c.

CHAP. X.

Vines.

THE number of notes I took, in moſt of the provinces of the kingdom, relative to the culture of vineyards, was not inconſiderable; but the difficulty of reducing the infinite variety of French meaſures, of land and liquids, to a common ſtandard, added to an unavoidable uncertainty in the information itſelf, renders this the moſt perplexing inquiry that can be conceived. It was an object to aſcertain the value given to the ſoil by this culture; the amount of the annual produce; and the degree of profit attending it; inquiries not undeſerving the attention even of politicians, as the chief intereſts of a country depend, in ſome meaſure, on ſuch points being well underſtood. Now there is ſcarcely any product ſo variable as that of wine. Corn lands and meadow have their bad and their good years, but they always yield ſomething, and the average produce is rarely far removed from that of any particular year. With vines the difference is enormous; this year they yield nothing; in another, perhaps caſks are wanted to contain the exuberant produce of the vintage; now the price is extravagantly high; and again ſo low, as to menace with poverty all who are concerned in it. Under ſuch variations, the ideas even of proprietors, who live by the culture, are not often correct, in relation to the *medium* of any circumſtance: nor is it always eaſy to bring individuals to regard rather the average of a diſtrict, than the particular one of their own fields. In many caſes, it is more ſatisfactory to rely on particular experience, when it appears tolerably exact, than to demand ideas, ſo often vague of what is not immediately within the practice of the man who ſpeaks. Theſe difficulties have occurred ſo often, and in ſo many ſhapes, that the reader can hardly imagine the labour which it repeatedly coſt

me to gain that approximation to accuracy, which I was fortunate enough ſometimes to attain. But, after all the inquiries I have made, with attention and induſtry, I do not preſume to inſert here an abſtract of my notes as intelligence that can be *entirely* relied on: I am ſatisfied, that it is impoſſible to procure ſuch, without application, time, and exertions, which are not at the command of many travellers. Contenting myſelf, therefore, with the probability of being free from groſs errors, and with the hope of giving ſome information on the ſubject, not to be found in other books, I venture to ſubmit the following extract to the public eye, though it be a reſult inadequate to the labour, variety, and expected ſucceſs of my inquiries. It is neceſſary farther to premiſe, that the reader muſt not contraſt the circumſtance of one place with thoſe of another, under the idea that a conſiderable difference is any proof of error in the account. The price of an arpent is ſometimes out of proportion to the produce; and the profit at other times unaccounted for by either:—this depends on demand, competition, the diviſion of properties, the higher or lower ratio of expence, and on various other circumſtances, which, to explain fully in each article, would be to enlarge this ſingle chapter into a volume; I touch on it here, merely to guard againſt concluſions, which are to be made with caution. The towns named in the following table, are the places where I procured intelligence.—None are inſerted in which I did not make the inquiry, as I was at every place mentioned in the margin.

The rents of vines are named but at few places; for they are very rarely in any other hands than thoſe of the proprietor; even where rent is named, there is not one acre in an hundred let.

The price of the product is every where that of the ſame autumn as the vintage: thoſe who can afford to keep their wine have much greater profits: but as that is a ſpecies of merchandize as much in the power of a dealer as of a planter, it ought not to be the guide in ſuch accounts as theſe.

ISLE OF FRANCE.—*Arpajon.*—Rent of ſome to 80 liv.; in common 25 liv. Expences in labour, excluſive of vintage, 60 liv. (2l. 10s. 9d. per Engliſh acre). Produce, 6 pieces, of 80 pints, each 1¼ bottle.

Eſtampes.—Meaſure 80 perch, of 22 feet. Produce, 10 to 22 pieces. Rent to 90 liv. Labour, 60 liv. (2l. 13s. 9d. per Engliſh acre), vintage excluded.

Orleans.—Price in the town, 150 liv. the piece, of 240 bottles, and retail 6 to 10*ſ.* the pint, of 1¼ bottle. Rent, 45 liv. Labour, 40 liv. vintage excluded (1l. 13s. 9d. per Engliſh acre.) Arpent of 40,000 feet.

S. of ditto.—Meaſure 100 perch, of 20 feet. Produce, 7 pieces, and in a good year 12. Rent, 36 liv. Labour, 40 liv. (1l. 13s 10d. per Engliſh acre).

SOLOGNE.—*Verſon.*—Rent in common, 35 to 50 liv. of the beſt 60 liv. the ſétérée. Produce, 10 to 12 pieces, and to 22.——Account here,

Rent,

Rent,	-	60 liv.		Produce, 11 pieces, at 20 liv.	220 liv.
Tailles, about		12		Expences, - -	156
Vingtieme,		5		Profit, - -	64
Labour,	-	40			
Props,	-	6	10*ſ.*	Price, 220 liv. (9l. 6s. 4d. per Engliſh acre.)	
Vintage,		33			
		156	10		

They renew ſome of the vines every year, by laying down ſhoots, called generally *provins*, but here *fauſſes*, five hundred per annum, at 50*ſ.* the hundred. They manure to the amount of thirteen ſmall cart loads, not reckoned in the above account. Twenty people neceſſary for gathering an arpent, at 12*ſ.* a day, and food. Vines are ſometimes much damaged by froſts in the ſpring.

BERRY.—*Vatan.*—No props; give four hoeings. *Fauſſé* 1 liv. 15*ſ.* the hundred. Rarely let. Produce, 3 pieces per ſétérée, ſome 6 or 8; price now 24 liv. Rent, 60 liv. Produce, 168 liv. (6l. 13s. 10d. per Engliſh acre.) To plant a ſétérée, for ſetting only, 45 liv. to 48 liv.; for two years produces nothing; the third a little. All agree it is the moſt profitable huſbandry, if one be not obliged to ſell in the vintage, for want of capital to keep the wine.

Chateauroux.—Very few let. Earth them four times. Produce, 3 poinçons, or pieces, a ſétérée. Rent, 60 liv.

Argenton.—Produce 5 or 6 pieces the ſétérée, each piece 160 bottles. Planted about 2 feet 6 inches ſquare. Uſe props of quartered oak.

QUERCY.—*Brive.*—A journal one-fourth of a ſétérée, 0,4132. (*Pauction.*) In a good year produce 2 muids, of 242 pints of 2 bottles, but not general. Price, 3 to 6*ſ.* the pint. Labour, 15 liv. vintage excluded.

Pont de Rodez.—The plants at 4 feet ſquare; very old and large. Every where quite clean, and in fine order, worked four times. Price, 6 liv. for 96 Paris pints. Cartona about half an acre.

Pellecoy.—Paſs vineyards, of which there are many ſo ſteep, that it is ſtrange how men can ſtand at their work. One-third of the country under vines, which are planted on abſolute rocks, but calcareous.

Cahors.—Nineteen-twentieths under vines; in regular rows, at 4 feet; many more than two hundred years old. The true *vin de Cahors*, which has a great reputation, is the product of a range of rocky vineyards, that are upon hills hanging to the ſouth, and is called *grave* wine, becauſe of the ſtoney ſoil. Much ſubject to ſtorms of hail. Meaſure the ſétérée, not quite an arpent. Produce, 4 barriques, each 210 common bottles. Price, 50 liv.; ſometimes at 20 or 30 liv.; and if two or three plentiful years together, the price of the wine does not exceed the caſk; laſt year 12 liv.; 50 liv. the barrique, is 3 liv. the

dozen. Price, 800 liv. the meaſure (33l. 18s. 1d. per Engliſh acre); ſome at at 150 liv. (6l. 6s. 10d.); alſo at 300 liv. (12l. 13s. 8d. Labour, excluſive of vintage, 30 liv. (1l. 5s. 4d.) Their wines all bear the ſea well. The inhabitants and proprietors have little to do in the wine trade; dealers buy up for the merchants at Bourdeaux, who mix theſe wines with their own thin bodied ones, and ſell them for claret to the Engliſh, Dutch, &c. They make much brandy; five barriques make one of brandy. I drank this wine of three and ten years old; the latter 30*ſ.* the bottle, and both excellent. I imported a barrique, three years old, at 100 liv. prime coſt and charges; and it coſt me into my cellar in Suffolk 15l. more, in freight, duty, carriage, and charges of all ſorts. Monſ. Andoury, aubergiſte at the *Trois Rois*, with whom I ſettled a correſpondence, might ſend me good wine; but not putting it into a double barrel, which he promiſed, it came to me much too weak; for the *vin de Cahors* is full bodied as port, but much better. A barrique I had alſo of another ſort of wine, from the Chev. de Cheyron, near Leyborne; and, for want of being caſed, it turned out ſuch poor ſtuff, that it is hardly good enough for vinegar. Without double caſing (and with it, for what I know), wines, *on a private account*, are tapped, and filled up with water.

Ventillac.—See them, for the firſt time in going ſouth, ploughing between the rows of vines, at 5 feet and 5½ feet aſunder.

Noé.—Ox-hoeing the vines on a plain; each ox walks on an interval, with a row between them; and yoked with a ſliding yoke, to vary the diſtance from ox to ox. Many young plantations of vines.

ROUSILLON.—*Pia.*—Vineyards not reckoned profitable, on land that will do well for other products: a minatre (1200 cannes, about 40,000 feet), from five to ten charges, each 128 bottles, or pints of Paris. Good wine, of laſt vintage, 6 liv. to 10 liv. the charge; but old at 72 liv.

Sejean.—The charge contains 60 pots, and weighs 360 lb.; five charges the muid, and the muid four tonneaux of Bourdeaux; price 10 liv. or 12 liv. the charge; freight from Cette to Dunkirk, 50 liv. 10*ſ.* the ton, and 20*ſ.* gratification; duty on export 7 liv.

Beziers.—Vineyards planted by Abbé Rozier, four feet four inches, by three feet ten inches, but not regular; ſet in a deep foſſe, and covered with flints only.

Méze.—New vineyards planted in all parts. A ſétérée, in a common year, gives two muids, or four tonneaux; 576 pots to the muid, or 768 bottles, each a Paris pint. Four tonneaux of wine, give one quintal of brandy, which ſells, at preſent, at 122 liv. 12*ſ.* the quintal. Produce in money 96 liv. (8l. per Engliſh acre), labour excluſive; vintage 15 liv. (1l. 6s. per Engliſh acre). Examined a vineyard, planted 1250 plants per ſétérée; they were four feet nine inches one way,

way, by four feet ſix inches the other; each plant therefore occupied 21-$\frac{14}{44}$ feet ſquare: rejecting the fraction, there would be 2073 in an Engliſh acre; thus the ſétérée is ſomething better than half an acre. They are worked twice a year by hand; the expence 15 liv. the ſétérée: the cuttings pay the expence of taking. Taille 30*ſ.* and making the wine 20*ſ.* the muid; common price of the wine 24 liv. the tonneaux.

Pijan.—Produce, 1½ muid per ſétérée, at 50 liv. 640 bottles, or 2*ſ.* the bottle. Within two leagues, Frontignan, ſo famous for its muſcat wines, a ſétérée of land has there yielded 300 liv. and half as much in a common year. Montbaſin is alſo noted for its muſcats, which ſells as dear as thoſe of Frontignan: three barriques make one muid, or 640 bottles: price in a common year, embarked at Cette, 300 liv.: the red wine of Montbaſin, 100 liv. the three barriques.

To Nimes.—Several thouſand acres of vines on a level plain.

Nimés.—For ſeveral leagues around, the vineyards yield from one muid to ſix per ſaumée; three, on an average; and the mean price 60 liv.: meaſure, 1715 cannes in a ſaumée, or 61,740 feet.

Plaiſance.—An arpent of wheat, one year with another, yields more than an arpent of vines; but an arpent of vines ſells for near double one of arable.

Auch to Fleuran.—Many vines. Price, 500 liv. (21l. 17s. 6d. per Engliſh acre).

Leitour.—Ditto on the ſtoney hills. Meaſure a ſack, that land ſown with a ſack of 145lb. wheat. Price, 400 liv. (17l. 10s. per Engliſh acre).

La Morte.—Landron.—Vines on the hills. Meaſure the journal, and further ditto, in the rich vale on the Garonne: props of willow. Price, 1000 liv. (50l. per Engliſh acre).

Langon.—Yellow wine famous. Meaſure, arpent. Produce, 5 or 6 barriques. Price, 1000 liv. the arpent (50l. per Engliſh acre). Produce, 300 liv. (15l. per Engliſh acre).

Barſac.—Sell at 5*ſ.* or 6*ſ.* the pas of 2 feet 6 inches; 90 pas the auln; and price 100 liv. Four rows of vines, or 4 aulns, make the breadth, and 90 pas long; are dreſſed four times a year, for 3 liv.: 45 rows a journal; but ſell the ſpace planted at one price, and the interval at another. The vines 20 liv. to 22 liv. the auln; the ſpaces between at 3 liv. Ninety by 2½, or 180 feet multiplied by 2½, for the breadth 450, and by 45, the number of rows, gives 20,250 ſquare feet for a journal: 45 rows, at 22 liv. are 990 liv.: but 45 by 3, the price of the interval 135 liv.: average 562 liv. on the ſuppoſition of half vines, half intervals. Hills that hang to the Garonne, on the N. ſide, an immenſe range of vines.

Caſtres.—In a journal, the half only planted as above, will give, in a good year, 4 tonneaux, average 1½. Two years ago, 35 liv. the tonneaux; this year, 60 liv. to 70 liv.: at 40 liv. it is 90 liv. per journal. Caſks from the N. of Europe,

Europe, much inferior to French ones, becauſe the ſtaves are larger and thicker; price of them, 240 liv. the dozen. Journal of Bourdeaux, to arpent de France, as 0,6218 to 1.

Bourdeaux to Cubſac.— This country, part *palus* and part high: produce 5 to 6 barriques on the latter, and 2½ to 3 tonneaux on the other: 1200 liv. (61l. 8s. 6d. per Engliſh acre) a common price; but ſome journals riſe to 3000 liv. (153l. 11s. 3d. per Engliſh acre), and even to 4000 liv. (191l. 19s. 3d.)

To Cavignac.—Produce wine 5 to 6 barriques the journal: make much brandy; 5 or 6 for 1; 220 bottles are ſold at 120 liv.: their white wine for export is now at 150 liv. the tonneaux. The fogs and rains this year, when the vines were in bloſſom, damaged them ſo much, that the crop will be very poor; which they are not ſorry for, ſince another great vintage or two would have ruined them, by the low price which is the conſequence. They have a fabric of tartar.

ANGOUMOIS.—*To Petignac.*—*Roulet.*—The journal of 200 laſt each, 12 feet ſquare, gives 1½ tonneaux; on good land, 4 to 6 barriques the journal of 200 carreaux of 12 feet ſquare, 28,800 feet; an arpent 1½; on worſe land 1½ to 3. A journal of wine not equal to the value of one of wheat: make much very fine brandy.

To Angoulême.—A journal, vines and arable land, of an equal price; 200 liv. common (10l. per Engliſh acre); produce 40 liv. (2l. per Engliſh acre).—An immenſe range of vines: produce, 3 to 4 barriques; common price, 10 liv.: make a great deal of good brandy, which ſells now at 150 liv. the barrique, but has been at 60 liv.; beſt vineyard 300 liv. to 400 liv.

Verteuil.—Price, 10 liv. to 15 liv. the barrique: proportion of brandy varies from 4 to 9 of wine for 1; in general 6 for 1.

Caudec.—Give 2, 3, and 4 barriques per journal.

POITOU.—*Chateaurault to Les Ormes.*—Poor hills, with vines, ſell equally with their beſt vale lands. Meaſure the boiſſelée.

TOURAINE.—*Tours.*—Produce, 5 to 30 pieces per arpent; average 10; and mean price, 15 liv. (150 liv. is 4l. os. 3d. per Engliſh acre): meaſure 100 chainé of 25 feet, 62,500 feet.

Amboiſe.—An arpent 8 pieces, at 4 liv. 192 liv. (5l. 12s. per Engliſh acre): meadows a better eſtate and ſell higher: the vines are 1500 liv. (43l. 15s. per. Engliſh acre).

Blois to Chambord.—Almoſt all the country vines, and many new plantations, on a blowing ſand; 2000 acres under the eye at once. Arpent 1600 toiſes: produce 12 poinçons, and, in good years, to 36, each 240 bottles; moſtly made into brandy: in one village, laſt winter, they made 3000 poinçons: in ſome years

years 3 of wine make 1: an arpent requires 7200 props, which laſt about eight years; the price 18 liv. to 20 liv. the thouſand.

Chambord.—Same meaſure: average produce 12 pieces.

To Petiviers.—Produce, 12 pieces on good land, at 36 liv. now; but average 10, at 24 liv. or 240 liv. (8l. 8s. per Engliſh acre). Meaſure 100 perch, at 22 feet: price 1000 liv. (35l. per Engliſh acre).

Petiviers.—Price of an arpent 700 liv. (24l. 10s. per Engliſh acre): produce, 4 to 20 pieces; average 10: price now 50 liv.; but average 24 liv. or 240 liv. (8l. 8s. per Engliſh acre). labour, excluſive of vintage, 30 liv.

Isle of France.—*La Chapelle La Reine*—Produce, 10 pieces, at 20 liv. 200 liv. (7l. per Engliſh acre): labour, excluſive of vintage, 30 liv.: meaſure 100 perches, 22 feet: price 600 liv. (21l. per Engliſh acre).

Liancourt.—A bad arpent 300 liv.; a good 600 liv. (450 liv. is 15l. 13s. 3d. per Engliſh acre): the meaſure 100 perches, at 22 feet. Produce, 3 muids, at 60 liv. 180 liv. (6l. 6s. per Engliſh acre) the muid, of 360 Paris bottles; yet bad, and not drank by gentlemen. Props, laſt five or ſix years, 10 liv. the thouſand; to keep an arpent in order, 2000 every year.

Bretagne.—*Auvergnac.*—A ſcattering of them from Guerande hither, and no where elſe N. except a few on the coaſt at Piriac and St. Gildas. Meaſure the journal of 1280 toiſes. Price, 800 liv. (29l. 3s. 10d. per Engliſh acre). Produce, 6 to 8 barriques, each 240 pints of Paris. Common price, 15 liv. to 20 liv. This for a good year. They reckon, that if they have no crop, they loſe 60 liv. per journal.

Nantes to Ancenis.—Produce, ſix barriques, now 25 liv. All promiſcuous, and no props.

Ancenis.—Boifelée, the fifth of an arpent de Paris; ſells, per arpent, at 750 liv. Produce, in a common year, 1½ barrique, or 7½ per arpent: and common price 22 liv. 165 liv. (8l. 8s. 10d. per Engliſh acre): ſometimes let, at three-fourths and one-half produce, to metayers. Labour, 6 liv. the boifelée, and 6 liv. the vintage; in all, 60 liv. the arpent. Great region of vines along the river; they extend not far from it: dung very little; many not once in fifteen years.

Varades.—Meadows ſell at double the price of vineyards, yet theſe 600 liv. (30l. 14s. 3d. per Engliſh acre).

Anjou.—*St. George.*—Boifelée, $\frac{1}{4}$ of an arpent, or 10,000 feet. An arpent, 40,000 feet, of the worſt vines ſells at 200 liv.; beſt 500 liv. (350 liv. is 14l. 9s. 7d. per Engliſh acre). Produce, 1½ to 5 barriques.

Angers.—On the Loire, vineyards are various; ſome produce very little of the beſt wine; and others, by manuring, much of an inferior quality. Four barriques of good wine, on an arpent of 100 cords, of 25 feet, or 62,500, is

a common

a common produce, but not a medium. The price, in a plentiful year, 35 liv.; and in one of ſcarcity, 50 liv. the barrique: this year it is 25 liv. but the wine bad, the grapes not being ripe. Four barriques, at 40 liv. make 160 liv. Expences—labour in digging 24 liv.; vintage 3 liv. the barrique, or 12 liv. the arpent;-caſks, at 5 liv. 20 liv.; tythe $\frac{1}{11}$th; beſides taxes. The aſſertion general, that vines are the worſt of all eſtates. Why? Becauſe, for one year in five or ſix, they yield nothing; and ſometimes little, for two or three years together. But admitted, at the ſame time, that if a man has money to enable him to keep his wine, two good years pay more than the fee ſimple. An arpent of the beſt vines on the Loire, ſells from 3000 to 4000 liv. Now, to gain from hence ſome facts by combination, call this 3500 liv. and that it pays only 5 per cent.—it is 175 liv.; labour 36 liv.; caſks 25 liv.; and here is 236 liv. without a penny for the king, or any *profit* to the proprietor: at 5 barriques, this makes 47 liv. each; a ſure proof, either that the produce muſt be more than 5 barriques,—or that the price muſt be more than 47 liv.; probably 9, at 40 liv. (360 liv. is 9l. 13s. 4d. per Engliſh acre), for a mean arpent, at 1750 liv. (47l. 5s. 3d. per Engliſh acre).

Duretel.—Vines ſells higher than arable, and meadow higher than vines.

La Roche Guyon.—Vines the worſt eſtate in the hands of poor proprietors only.——Account of an arpent of Paris. Price, 1200 liv. (61l. 8s. 4d. per Engliſh acre.)

	Liv.		Liv.
Rent; the intereſt of the price, at 4 per cent.	48	Produce, 6 muids, at 50 liv.	300
Labour, Vintage, 68 liv. (3l. 9s. 2d. Engliſh acre)	60 / 8	(15l. 7s. 1d. Engliſh acre.)	
Manure,	40	Expences,	227
Six caſks,	36	Profit,	73
Props,	30		
Taille,	5		
	227		

The muid 240 pints de Paris.

An extraordinary good year is 10 muids; a middling one ſix; and a bad one three. As to no produce at all, or ſo little as one, no ſuch thing is known, not even in forty years. But query, hail?

In 1785, the crop was	12 muids, at	27 liv.	324 liv.
1786,	5	70	350
1787,	3	90	270
1788,	4½	75	337

The labour conſiſts in carrying of dung, pruning, trimming, four diggings, ſtaking, tying, budding, &c.

How

How this huſbandry can be eſteemed unprofitable, as it is generally in France, ſurpaſſes my comprehenſion: in the hands of a man without a ſufficient capital, it certainly is ſo; but thus alſo is that of wheat and barley.

Neuf Moutier.—In one of the richeſt diſtricts in France, vines on the ſlopes ſell at 2000 liv. to 2500 liv. (2250 liv. is 78l. 13s. 3d. per Engliſh acre) the arpent of 100 perches of 22 feet; where the rich vales let at 40 liv. to 60 liv.; and land of 40 liv. ſells not higher than 1500 liv. or 1600 liv.

CHAMPAGNE.—*Epernay, &c.*—Two-thirds of all the country around, about Ay, Cumiere, Piery, Diſy, Hautvilliers, &c. &c. under vines; and here all the famous Champagne wines are made. The country producing the fine white wine is all contained in the ſpace of five leagues: and three or four more include Aviſe, Aungé, Lumenée, Crammont, &c. where they make the white wine, with white grapes only. At Ay, Piery, and Epernay, the white wine is all made with black grapes. La Montagne de Rheims, Bouzé, Verſeé, Verznée, Teaſe, Airy, and Cumiere, for the *bon rouge de la Marne*. At Airy the firſt quality of the white alſo made. With the black grape they make either red or white wine, but with the white only white wine.

The price of the land is very high; at Piery 2000 liv.; at Ay 3000 liv. to 6000 liv.; at Hautvilliers 4000 liv. The worſt in the country ſells at 800 liv. (3000 liv. is 105l. 9s. per Engliſh acre; 6000 liv is 210l. 18s.)

The produce, as may be ſuppoſed, varies much; at Ay, two to ſix pieces, and four the average; at Reuil and Vanteuil, to twenty pieces; at Hautvilliers, a convent of Benedictines, near Epernay, eighty arpents that yield two to four; and the price varies equally: at Ay, the average is two, at 200 liv.; one at 150 liv.; and one at 50 liv. By another account, 200 liv. to 800 liv. the queue, of two pieces; average 400 liv. the queue. At Reuil and Vanteuil it is 60 liv. to 100 liv. The vines of Villiers 700 liv. to 900 liv. the queue. Red wine is 150 liv. to 300 liv.

——Account of a conſiderable vineyard, an average one, given me at Epernay.

For an Arpent.	Liv.	*Per Engliſh Acre.*
Intereſt of purchaſe, 3000 liv. - -	150	£. 6 11 3
Labour, - - - -	55	2 8 1½
Renewal *(provins)* ditto, - - -	24	1 1 0
Tying, - - - -	8	0 7 0
Props, - - - - -	30	1 6 3
Manure, 1 part dung to 14 earth, - -	20	0 17 6
Vintage, 12 liv. a piece, - - -	48	2 2 0
Caſks, - - - - -	15	0 13 1½
Taxes—taille, vingtieme, and capitation,	9	0 7 10½
Carry forward, - - -	359	15 14 1½

For an Arpent.	Liv.	*Per Engliſh Acre.*
Brought forward,	359	£. 15 14 1¼
Aides, 15 the queue,	30	1 6 3
Cellar, vaults, preſs, reſervoirs, tubs, &c. and building to hold them, 8000 liv. for 20 arpents, or 400 liv. per arpent, the intereſt,	20	0 17 6
	409	17 17 10¼
Produce.—Two pieces, at 200 liv.	400	17 10 0
One ditto,	150	6 11 3
One ditto,	50	2 3 9
	600	26 5 0
Expences,	409	17 17 10¼
Profit,	191	8 7 1¼

Which, with the intereſt charged, makes 10 per cent. on 3000 liv. land, and 400 liv. buildings; the general computation, and which ſeems admitted in the country. Sixty women are neceſſary to gather the grapes for four pieces, by reaſon of the attention paid in the choice of the bunches; a circumſtance to which much of the fine flavour of the wine is owing, as well as to ſingularity of ſoil and climate; the former of which is all ſtrongly calcareous, even to being white with the chalk in it. A fine lengthened ſlope of a chalk hill, hanging to the ſouth, between Diſy and Ay, which I examined, is entirely covered with vines, from top to bottom, and is the moſt celebrated in the province. It is indeed rather a marl than a chalk; in ſome places white, in others much browner, and may properly be called a calcareous loam on a chalk bottom. This marl is, in ſome places, very deep, and, in others, ſhallow. I was ſhewn pieces worth 6000 liv. the arpent, and others worth 3000 liv. but the difference of ſoil was not perceptible; nor do I credit that this difference depends on ſoil: none of it approaching to pure chalk. It is impoſſible to diſcover, in the preſent ſtate of knowledge and information, on what depends the extraordinary quality of the wine. The people here aſſert, that in a piece of not more than three arpents, in which the ſoil is, to all appearance, abſolutely ſimilar, the middle arpent only ſhall yield the beſt wine, and the other two that of an inferior quality: in all ſuch caſes, where there is ſomething not eaſily accounted for, the popular love of the marvellous always adds exaggeration, which is probably the caſe here. Attention in gathering and picking the grapes, and freeing every bunch from each grape that is the leaſt unſound, muſt tend greatly to inſure wine of the firſt quality, when the difference of ſoil is not ſtriking.

The

The vines are planted promiſcuouſly, 3 or 4 feet, or 2½ from each other: are now about 18 inches or 2 feet high, and are tied to the props with ſmall ſtraw bands. Many plantations are far from being clean, ſome full of weeds; but a great number of hands ſpread all over the hill, ſarcling with their crooked hoe.

As to the culture, in the middle of January they give the cutting, *taillé:* in March dig the ground: in April and May they plant the provins: in June tie and hoe the ſeps: in Auguſt hoe again: in October, or, in good years, in September, the vintage.

To plant an arpent of vines, coſts in all 50 louis d'or: there are 8000 plants on an acre: and 24,000 ſeps and the props coſt 500 liv.: to keep up the ſtock of props 30 liv. a year. It is three years before they bear any thing, and ſix before the wine is good. None are planted now; on the contrary, they grub up.

Very few perſons have more than twenty or thirty arpents, except the Marquis de Sillery, near Rheims, who has two hundred and fifty arpents. At Piery there are twenty arpents now to be ſold; a new houſe, a good cellar, magazine, a good preſs, and every thing complete, for 60,000 liv.: the vines a little, but not much, neglected. For this ſum I could buy a noble farm in the Bourbonnois, and make more in ſeven years than by vines in twenty.

Thoſe who have not a preſs of their own, are ſubject to hazards, which muſt neceſſarily turn the ſcale very contrary to the intereſts of the ſmall proprietor. They pay 3 liv. for the two firſt pieces, and 25 *ſ.* for all the reſt: but, as they muſt wait the owner's convenience, their wine ſometimes is ſo damaged, that what would have been white, becomes red. Steeping, before preſſing, makes red wine.

As to preſſing, to do it very quickly and powerfully, is much the better way; and they perfer turning the wheel of the preſs by ſix, ſeven, or eight men, rather than by a horſe.

In regard to the aides, or tax, on the transfer of wine, the proprietor who ſells a piece worth 200 liv. pays - - - 10 liv.

Ten ſols per liv. - - - -	5
Augmentation; *gauge*, conſtage, &c. -	5
Octroi de la Ville and du Roi, - -	5
	25

The merchant, when he ſells it, pays the ſame; and every perſon through whoſe hands it paſſes. The duty at the port, on exportation, is about 15 liv. each piece. The cabareteer and aubergiſte pays 30 or 40 liv. more retail duty. The wine trade with England uſed to be directly from Epernay; but now the wine is ſent to Calais, Bologne, Montreuil, and Guernſey, in order to be paſſed into England, they ſuppoſe here, by ſmuggling. This may explain our Champagne

pagne not being ſo good as formerly. Should the good genius of THE PLOUGH ever permit me to be an importer of Champagne, I would deſire Monſ. Quatre-ſoux Paretclaine, merchant at Epernay, to ſend me ſome of what I drank in his fine cellars. But what a pretty ſuppoſition, that a farmer, in England, ſhould preſume to drink Champagne, even in idea! The world muſt be turned topſy-turvy before a bottle of it can ever be on my table. Go to the monopolizers and exporters of woollens—go to—and to—and every where—except to a friend of the plough!

The eccleſiaſtical tithe is a heavy burthen. At Hautvilliers the eleventh is taken for a dixme; at Piery the twentieth, or in money 4 liv. 10*ſ.*; at Ay, 48*ſ.* and at Epernay 30*ſ.*; at Diſy $\frac{1}{11}$; but with all this weight of tax, nothing is known or ever heard of like the enormities practiſed in England, of taking the actual tenth.

The idea of the poverty attending vines is here as ſtrong as in any other part of France: the little and poor proprietors are all in miſery. The fact is obvious, that a hazardous and uncertain culture is ridiculous, for a man with a weak capital. How could a Kentiſh labourer be a hop-planter? But no diſcrimination is found commonly in France—the aſſertion is general, that the vine provinces are the pooreſt; but an aſſertion without explanation is utterly ridiculous. To render vines profitable, it is a common obſervation here, that a man ought to have one-third of his property in rents, one-third in farm, and one-third in vines.

It is eaſy to conceive, that the moſt ſucceſsful cultivators are thoſe who have the largeſt capitals. It is thus that we hear of the exertions of merchants; men who not only have many arpents of their own vines, but buy the wine of all their little neighbours. Monſ. Laſnier, at Ay, has from fifty to ſixty thouſand bottles of wine always in his cellar; and M. Dorſé from thirty to forty thouſand.

Rheims.—Average price of an arpent 2400 liv. (84l. per Engliſh acre.)

Account.

	Liv.		Liv.
Intereſt,	120	Produce, 3 pieces, at 240 liv.	420
Culture by contract,	40	(14l. 14s. per Engliſh acre.)	
Manured every fifth year, 60 liv.; and 1000 men or women's loads of earth to mix, 36 liv.	96		
Props, 20 bundles,	12		
Extra hoeing,	6		
Taxes,	8		
Caſks,	18		
Vintage, at 20*ſ.* a day,	18		
Preſs, four men, at 20*ſ.* and 20*ſ.* food,	8		
Carry forward,	326	Carry forward,	420

	Liv.
Brought forward, - - -	326
Intereſt of buildings, cellar, magazine, preſs, and utenſils,	30
The cellar-man, 200 liv. for 20 arpents, per arpent,	10
	366
Labour, 64 liv. (2l. 4s. 7d. per Engliſh acre): intereſt of which for firſt year, - - -	18
	384
Droit d'aides, 7½ per cent. on value, three pieces groſs, beſides conſtage, &c. &c. - - -	40
	424

	Liv.
Brought forward,	420
Loſs, - -	24
	424

But inſtead of loſs, every one I talked with, and the gentleman himſelf who gave me this account, Monſ. Cadot L'Ainé, who has a conſiderable vineyard, aſſured me, that they pay, on an average of ten years, 7½ per cent. on the capital; this will make a difference of 75 liv. which, with the 24 liv. loſs in this account, is 99 liv. which muſt be partly deducted from theſe expences, and partly added to the produce. On an average, the manuring is, I ſuſpect, eſtimated too high. The vines this year promiſe to yield not a piece per arpent; not by reaſon of froſts laſt winter, but of the cold, being ſo late as laſt week (in July).

The little proprietors here alſo are generally very poor, and many are ruined by not being able to wait for a price. The wine trade at Rheims amounts to four or five millions per annum (175,000l. to 218,700l.)

Sillery.—The Marquis has a hundred and ſixty arpents under vines, and not two hundred and fifty, as I had been informed; he has cellar room for two hundred pieces; this was mentioned as an extraordinary circumſtance, but it ſhews that he is very deficient in a power of keeping his wines: a hundred and ſixty arpents, at three each, are four hundred and eighty pieces; ſo that his cellar, inſtead of containing the crop of three years, will not hold half the crop of one year. It is evidently a buſineſs that ought to have a large capital, and even an apparently ſuperfluous one, or all the profit goes to the merchant.

LORAINE.—*Braban.*—Price, 175 liv. (25l. 10s. 1d. per Engliſh acre). Meaſure, 80 perches, at 11½ feet.

Verdun.—Meaſure, 480 verges, of 8 feet 2 inches, equal 66 perches of Paris: higheſt ſell to 2400 liv.; not uncommon 1100 liv. (84l. per Engliſh acre).

Metz.—Meaſure, journal, equal to 69½ perches of Paris. Price, 1200 liv. (89l. 14s. per Engliſh acre).

Account

Account.

	Liv.
Culture, 6 liv. per monée, 8 monées in the journal,	48
Props, 20 *ſ.* the monée,	8
Two loads of dung, at 3 liv.	6
Repairs of caſks,	6
Taxes, taille, and capitation,	13
Ditto vingtieme,	4
Preſſing, one-thirtieth of the crop,	9
Vintage,	16
	111
Labour, 64 liv. (5l. 0s. 7d. per Engliſh acre).	

	Liv.
Produce, 40 hottes, each 44 pints of Paris, at 6½ liv. (20l. 9s. 6d. per Engliſh acre.)	260
Expences,	111
Profit,	149

But intereſt of 1200 liv. is 60 liv. and the tithe here is from the twentieth to the thirtieth to be deducted. The general aſſertion, which ſeemed to admit no doubt, was that the profit is 7 per cent.

Pont au Mouſſon.—Meaſure a journal, 10 hommeés, or 250 verges of 10 feet, the foot of 10 inches.

Account.

	Liv.
Labour,	30
Manuring, 64 liv. but once in eight years,	8
Vintage, twenty-five perſons for 13 journals, at 12 *ſ.* fed,	3
Preſs,	2
Caſks,	16
Taxes, no droit d'aides,	3
Props,	4
Arpent, 800 liv. (66l. 2s. 1d. per Engliſh acre), Buildings, 60 / 860, Intereſt of ditto,	45
Droit de gabelle, and gauge, 13 *ſ.* per hotte,	10
	121
Labour, 33 liv. (2l. 9s. 10d. per Engliſh acre.)	

	Liv.
Produce, 400 hottes, on 13 arpents, 30 per journal, (14l. 11s. 3d. per Engliſh acre.)	180
Expences,	121
Profit,	59

But ſome little error here, for the common calculation is, that they pay 10 per cent.

Vines are planted more and more, the culture augmenting every day; they plant the land proper for wheat as readily as any other.

Nancy.—Meaſure, 19,360 feet. Price of the beſt, 1000 liv.; the worſt, 500 liv. (at 750 liv. 65l. 12s. 6d. per Engliſh acre). They have what they call the *groſs race*, and the *petite race* of vines; the firſt gives much in quantity, but of a bad quality; the latter wine of a good quality, but in quantity ſmall.

The

The medium produce is twenty meaſures per journal, of eighteen pots of two pints of Paris, of the groſs race, and ten of the petite. The mean price of the firſt 5 liv.; of the latter 10 liv. (at 100 liv. it is 8l. 15s. per Engliſh acre).

Luneville.—The journal 15,625 feet. Produce, 40 meaſures of the groſs race, of all ſorts; average, twelve meaſures, 6 liv. 15*ſ.* Price, per journal, 550 liv. (56l. 17s. 6d. per Engliſh acre). Produce, 80 liv. (8l. 12s. per Engliſh acre).

ALSACE.—*Wiltenheim.*—Meaſure, 100 verges, at 22 feet. Price, 900 liv. (31l. 10s. per Engliſh acre).

Straſbourg.—Meaſure, 24,000 feet. Price, 800 liv. (55l. 7s. 9d. per Engliſh acre). Produce, thirty meaſures, of twenty-four pints of Paris. Good price, 6 liv. the meaſure; middling, 4 liv. 10*ſ.*; low, 3 liv. (at 150 liv. produce, it is 10l. 7s. 4d. per Engliſh acre).

Scheleſtadt.—Produce, forty meaſures. Price, 6 liv. the meaſure, 240 liv. (16l. 12s. 6d. per Engliſh acre).

Iſenheim.—Some ſo high as 3000 liv. but few that yield a hundred meaſures, at 6 liv. but by no means common.

FRANCHE COMPTE.—*Beaume.*—Meaſure, an œuvre. Produce, a muid, at 40 liv. to 60 liv.

Beſançon.—Meaſure, a journal, of 8 œuvres; the œuvre 45 perches, of 9½ feet. Price, 40 liv. to 400 liv. the œuvre. Produce, a quarter of a muid to one muid, or eight per journal. The grape, called the *gammé*, yields the moſt wine, but of the worſt quality. Common Price, 60 liv. the muid.——Account of a journal, 32,400 feet.

	Liv.		Liv.
Intereſt of 2400 liv. (123l. 6s. Engliſh acre), at 5 per cent.	120	Produce, 4 muids, at 60 liv. (12l. 6s. per Engliſh acre,	240
Culture, 5 liv. the œuvre,	40	Expences,	214
Props, 1 liv. ditto,	8	Profit,	26
Vintage, 5 liv. ditto,	40		
Tonneaux, 12 liv. the muid new; but reparation a trifle,	0		
Taille, capitation, and vingtieme 8*ſ.*	3 4*ſ.*		
No droit d'aide.			
Never dung, thinking it ſpoils the wine.			
Fauſſe, renovation 3 liv. per 100,	3		
Tythe, none in common; but, where found, only from one-twelfth to one-twentieth.			
	214		
Labour, 83 liv. (4l. 4s. per Engliſh acre.)			

The common idea is, that the produce of an œuvre is	30 liv.
And the expence	12
	18
Or profit per journal	144
Intereſt	120
Remains net	24

They

They are alſo generally ſuppoſed to yield but five per cent. profit on capital, and ſometimes not ſo much.

The vines here are in double rows, at about two feet, and the props placed in an inclining poſition, ſo as to join over the centre of that ſpace, and are there tied to a horizontal prop; by which means any ſmall ſticks anſwer the purpoſe of props.

Bourgogne.—*Dijon.*—Meaſure, journal of 900 toiſes. Price of common vineyards, 1100 liv. to 1500 liv. (at 1250 liv. it is 63l. 19s. 2d. per Engliſh acre), the beſt about Dijon. Produce, about ſeven or eight pieces, or muids, at 36 liv. (at 270 liv. it is 13l. 16s. 6d. per Engliſh acre): pay ſix per cent. But the fine vineyards of Veaune, Romaré, Taſh, &c. ſell at 3000 liv.

Clos de Veaujeau.—This is the moſt famous of all the vineyards of Burgundy, the wine ſelling at the higheſt price; it contains above an hundred journals, walled in, and belongs to a convent of Bernardine monks. This reminds me of Hautvilliers, near Epernay, one of the fineſt vineyards in Champagne, having reverend maſters alſo. There are no trees in that at Clos de Veaujeau, though in all the more common ones. The vines are now not more than two or three feet high, the props being ſhort alſo; they are not in rows, but planted promiſcuouſly. The ſoil a brown loam, inclining to reddiſh, with ſtones in it, which, on trial, proved calcareous. It is not like the fine vineyards of Champagne, on a declivity, but flat, at the foot of a hill, which is rocky. The produce, 1¼ muid, at 600 liv. the muid, 900 liv. (46l. 1s. 4d. per Engliſh acre). The vineyard would, it is ſaid, ſell for 10,000 liv. the journal (511l. 17s. 6d. per Engliſh acre). They make white wine alſo, of a quality and price equal to the red.

Nuys—The fineſt vineyards ſell up to 7000 liv. and 8000 liv. a journal; but in common about 1000 liv. (51l. 3s. 9d. per Engliſh acre). The produce of the fine wines never great; four pieces, or muids, of half a queue, or two hundred and forty bottles, is a great produce; 1¼ middling; and, in bad years, none at all, which happens ſometimes, as at preſent, after a very fine appearance; but the froſts at the end of May cut them off ſo entirely, that there is not a grape to be ſeen. Such wine as the poor people drink, ſells commonly at 60 liv. or 70 liv. the queue, now 120 liv.——Account of a journal:

	Liv.		Liv.
Intereſt, - - - -	50	Produce, 1¼ piece, at 100 liv. (8l. 19s. 4d. per Engliſh acre),	175
Culture, by contract (ſome at 60 liv.) -	72		
Props, called here, not *echalats*, but *paiſeaux*,	6		
Caſks repaired, - - -	6	Expences, -	148
Taxes, - - - -	8	Profit, -	27
Vintage, - - - -	6		
	148		

One

One vigneron, with his wife and four children, muſt all work very well to do four journals; for which, if at 60 liv. they receive 240 liv. but have the winter for other work. The vineyards which bear the greateſt reputation here, after the Clos de Veaujeau, are thoſe of St. George, Romané, La Taſhe, de Vaume, Richebourg, Chambertin, and Côte roté. The beſt is 25l. the piece, or 3 liv. the bottle; but this is the price of the vintage; kept three or four years it ſells for 4 liv. and even 5 liv. the bottle in the country.

In 1782, the crop was ſo great, that they gave 12 liv. for very miſerable caſks, and ſold them full at 20 liv. but the wine not good. 1785 was the laſt great crop, when the price of a caſk, a tonneau, which commonly is 12 liv. new, was 36 liv. to 40 liv. but the wine bad: they never dung for fine wines, only for bad ones, but they manure ſometimes with earth. New vineyards give a larger quantity of wine than old ones, but the wine of the latter the beſt quality. There are here, as in all the other wine provinces, many ſmall proprietors who have but patches of vines, and always ſell their grapes; but there is no idea of their being poorer than if they did not purſue this culture.

Beaume.—The ſtones in the vineyards here calcareous. An œuvre coſts 400 liv. 3200 liv. per journal (163l. 16s. per Engliſh acre). Produce, two or three pieces, at 15 liv. this common wine; but there are fine ones vaſtly higher. The wines of greateſt name here, after the *Clos de Veajeau*, are Volny, Pomar, Aloes, Beaume, Savigné, Mulſo (white), and Maureauché, which laſt ſells, ready to drink, at 4 liv. the bottle; new at 1200 liv. the queue. They give here great accounts of the profit attending this culture; but, on being analyzed, they are found all to turn on the ſuppoſition of having good cellars, and keeping for a price, which is mere merchandize, and not cultivation; for the merchant who buys at the vintage, to fill his cellars, is exactly in the ſame predicament; and to enjoy this profit, it is not neceſſary to cultivate a ſingle acre.

Chagnie.—Price of an œuvre 100 liv.; eight of them to a journal, 800 liv. (40l. 19s. per Engliſh acre). Common produce, one piece per œuvre: the price now 60 liv. the piece, but 20 liv. more common (160 liv. is 8l. 3s. 7d. per Engliſh acre.)

Couch.—An œuvre, the eighth of a journal, ſells at 100 liv.; but there is more at 80 liv. Produce, one piece, at 36 liv. common price, but now 60 liv.; uſually one piece at 25 liv.: half the produce, by contract, for labour (at the price of 640 liv. it is 32l. 15s. 4d. per Engliſh acre.)

BOURBONNOIS.—*Moulins.*—Sell to 1000 liv. the arpent (34l. 12s. 1d. per Engliſh acre) of eight boiſeleés, each 168 toiſes, 48,384 feet. In a good year, produce eight poinçons, at 30 liv.; common year five or ſix, at 30 liv. for common vineyards: half the produce is paid, by contract, for labour. Very rarely dung: props 7 liv.: tithe the eleventh.

Riaux.—Common produce, half a piece per œuvre, or boifelée; one-fourth for proprietor, and one-fourth for labour.

St. Ponerin.—Vineyards on hills, 100 liv. the boifelée; 800 liv. the arpent (27l. 13s. 10d. per Engliſh acre).

AUVERGNE.—*Riom.*—Sell at 200 liv. the œuvre; ſometimes 1*ſ.* the bottle, or 15*ſ.* the pot; now 3 liv.; middling price 20*ſ.* to 30*ſ.*

Clermont.—Meaſure, 800 toiſes: beſt 300 liv.; worſt 100 liv.; midling 150 liv. an œuvre; 1200 liv. the arpent (70l. per Engliſh acre); medium ten pots, each ſixteen pints of Paris; on the beſt land fifteen, and the mean price 30*ſ.*; at preſent 3 liv.: tie them with willow branches, *ſalix viminea.*

Izoire.—In common ſell at 500 liv. or 600 liv. the ſétérée, but in good ſituations 800 liv. (46l. 12s. 9d. per Engliſh acre): the œuvre of the beſt yields two ſommes; middling one and a half; bad one: the ſomme ſix pots, each ſixteen pints of Paris: the common price after the vintage, 25*ſ.* to 30*ſ.* the ſix pots (at 168 liv. it is 9l. 16s. per Engliſh acre).

Account of an Œuvre.

	Liv.	Sols.
Labour,	8	0
Props,	2	10
Intereſt buildings, 100 liv. 50 œuvres,	2	8
Intereſt of 100 liv. purchaſe,	5	0
Taille, &c.	0	11
Provins,	0	8
Dung ditto,	0	2
	19	1

	Liv.
Produce, 1¼ ſomme, at 30*ſ.* the pot, 12 liv. the ſous,	21
Expences,	19
Profit,	2

By which we are only to underſtand that they pay little more than common intereſt.

Briude.—Price, 10 liv. to 100 liv. (55 liv. is 25l. 12s. 9d. per Engliſh acre): the worſt are on rocks, where a ſtorm drives ſoil and crop away. It is very remarkable that the rocky declivities, which are ſo natural to the vine, here yield a wine far inferior to the rich plain of the Limagne. This deſerves remark, and a further attention from the naturaliſts, who examine this very curious and intereſting country. They have thirty-five ſorts of vines here; the *Lange dit de chien* is the firſt.

DAUPHINE.—*Montelimart.*—Price of a ſétérée, half an arpent of Paris, 168 liv. to 480 liv. and produces ſeven meaſures of wine, called charges, each of a hundred bottles, the common price 15 liv. or 75 liv. per ſétérée.

Account

Account.

	Liv.
Intereſt of 300 liv. (44l. 12s. 6d. per Engliſh acre) mean price,	15
Culture, 1ſt, 20 liv.	
2d, 10	30
3d, paid by cuttings, 0	
No props.	
Vintage,	6
Caſks,	3
Taxes,	2
No droit d'aides.	
Cellar, &c. &c.	2
	58

	Liv.
Produce, (7l. 17s. 6d. Engliſh acre),	75
Expences,	58
Profit,	17

PROVENCE.—*Avignon.*—Price 70 liv. the eymena, and produce three barrels: price at preſent, 6 liv. the barrel, or 3*ſ.* the bottle; common price 2*ſ.* The beſt vines give 8 per cent. on capital.

Aix.—The carterée 800 liv. (63l. per Engliſh acre). Meaſure, ſix hundred cannes for the carterée; the canne of eight pans, the pan of nine inches and three lines.

Tour d'Aigues.—The produce of a ſomma is a hundred coup, each 60 lb. 3 lb. a pot; and the common bottle 2¼ lb.: 100 lb. of grapes give 60 lb. of wine. Mean price 30*ſ.* the coup, or per ſomma 150 liv. Meaſure, 50,400 feet.

Account.

	Liv.	Sols.
Culture,	48	0
Hoeing and pruning,	12	0
Vintage and carriage,,	10	0
Intereſt of buildings, &c.	15	0
Taille, by the cadaſtre (but this varies every year, by reaſon of provincial expence),	10	0
Seigneural duty,	1	12
Price, 600 liv. (20l. 2s. 6d. per Engliſh acre), intereſt,	30	0
	126	12

	Liv.	Sols.
Produce, (4l. 19s. 6d. per Engliſh acre),	150	0
Expences,	126	12
Profit,	23	8

Hyeres.—Uſually planted in double rows, at three or four feet, with intervals of different diſtances, ploughed, or hoed for corn; and this method they call *mayoivere.* Two hundred and eighty plants produce one bout of wine, of ſix barrels, each barrel twenty-eight pots, and each pot 3 lb. Common price per bout 50 liv.

Obſervations.

It is merely for curioſity I obſerve, that the average of all the prices per meaſure, in the purchaſe of theſe vineyards, amounts to 611. 8s. per acre; ſuch a medium demands very little attention, unleſs the minutes were exceedingly numerous, and equally ſo in every province. Rejecting thoſe in which the prices exceed 100l. an acre, as going certainly much beyond what can poſſibly be the medium of the kingdom, the average of the reſt is 41l. 1s. 6d. per acre. But I ſhould wiſh that attention were rather given to another mode of calculating the price and produce of theſe vineyards; there are twenty-three minutes that include both price and produce; the average of theſe excluſive of ſuch as riſe above 100l. purchaſe, and 21l. produce, is

For the price per Engliſh acre, -	£.45	1	0
For the produce, - - -	9	2	0*

Which is in French money, per arpent of Paris,—Price, - 871 liv.
Produce, 175

From which it appears, that vines, in theſe provinces, give, in annual produce, one-fifth of their fee ſimple.

The amount of labour per acre, on an average of thoſe minutes, in which it appears to be ſatisfactorily noted, and rejecting the higher articles as before, is 2l. 12s. 6d.

The net profit appears, from ſeveral of the minutes, to vibrate between 7 and 10 per cent. on the capital employed.

How nearly theſe averages, noticed in my route, approach the real medium of the whole kingdom, it is impoſſible, with any degree of accuracy, to conjecture; but I am inclined to believe, that the difference may not be conſiderable. This, however, muſt be left, with a proper diffidence, to the well informed reader's ſuperior ſagacity.

The importance of this branch of cultivation to the kingdom, and the idea ſo common there, I may almoſt ſay univerſal, that the wine provinces are the pooreſt, and that the culture is miſchievous to the national intereſts, are ſubjects too curious to be diſmiſſed haſtily: as my opinion is directly the reverſe of the prevalent one in France, it is neceſſary to explain the circumſtances on which it is founded.

* The Marquis de Mirabeau obſerved, that an arpent of vines is, on an average, worth double the beſt arpent of corn. *L'Ami des Hommes.* 5th edit. 1760. tom. vi. p. 137. This agrees pretty well with my notes.

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It appears, by the preceding minutes, that the value of the ſoil thus employed was probably higher than it could be in any other application, good meadows (valuable from their ſcarcity) alone excepted: that the produce much exceeds all others; and laſtly, that the employment depending upon it is very conſiderable. Under ſuch leading and powerful circumſtances, and connected as they are with another not leſs eſſential, that vaſt tracts of the land thus employed are rock and declivities, too ſteep for the plough,—it ſhould ſeem aſtoniſhing, how an idea could ever be entertained that ſuch a cultivation could be prejudicial to a country: it is, however, very general in France.

The queſtion ought to be put ſolely on this iſſue—Would the ſame land, under any other culture, ſell at the ſame price? 45l. per acre, amounting to thirty years purchaſe, at 30s. an acre, is ſuch a value as France, in the richeſt vales, knows nothing of (meadows alone excepted, which will always be valuable according to ſcarcity and heat of climate), and we in England as little. But this greater value ariſes not by any means from the richeſt lands, but from thoſe which, conſidered on a medium, are certainly very inferior to the reſt of the kingdom. Great tracks could be applied to no other uſe than that of ſheep-walk or warren; much is ſituated, in ſome of the pooreſt ſoils in the kingdom, on ſands, ſharp gravels, and lands ſo ſtoney, as to be inapplicable to the plough: to poſſeſs a climate that gives the power of raiſing ſuch land to the value of 30l. or 40l. an acre, is beyond all doubt or queſtion, a ſuperiority that cannot be too much valued.

The amount of the produce is not leſs ſtriking: rich paſtures ſell every where at high prices, becauſe they are attended wih no expences; and thus a ſmall product may be claſſed with a large one; but it is not ſo with vines. The average of 9l. an acre, on a mean of good and bad years, is ſuch as no other plant will equal that is cultivated in France, watered lands alone excepted. It is only on ſingularly fine ſoils, in certain peculiar diſtricts, that any thing approaching ſuch a product is to be met with. There is no part of Europe, in which a crop of wheat, of ſuch value, is not exceedingly large, and much beyond the average. That of all the wheat, in any of the richeſt counties in England, vibrates between 6l. and 7l. an acre, prepared for, perhaps, by a barren and expenſive fallow,—at leaſt by ſomething much leſs profitable than itſelf. What then are we to think of a plant which covers your land with a rich crop of wheat every year?

There are many men, however, in France, who will ſay, YOUR REASONING MUST BE ERRONEOUS; *for there is not a vine proprietor in France, who would not give you his vineyard for your ideal wheat of every year.* The obſervation may be perfectly juſt; but it is no anſwer to me, who am not ſpeaking of *net profit*, but of *produce*. To him who conſiders the ſubject in a national light, and as a politician, the former is not the object;—the great point is to ſecure a large produce. The prince may levy ſuch heavy taxes on the produce; and

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it may be gained by ſuch an operoſe culture, that the poor may levy a much heavier for their labour; the conſequence to the cultivator may be a low profit, but to the nation at large the importance of the product remains the ſame, and unimpeached. And in this light I look upon that of vines as ſo conſiderable, that ſhould the fact of the real average of the whole kingdom prove leſs than I make it—even ſo little as 7l. per acre, I ſhould ſtill eſteem the culture an object of infinite national conſequence. It is more than ſugar pays in the Weſt Indies, which is uſually ſuppoſed the moſt profitable cultivation in the world.

In regard to the net profit, which on the minutes vibrates from 7 to 10 per cent. it does not ſeem to ſome to be adequate to the peculiar happineſs of the climate, and the reputation of the wines throughout the world; or to the price of the land, or amount of the product. But, in this reſpect, it muſt be conſidered, that the minutes, ſo far as they concern the returns in money, are the prices of the vintage only: whereas every man that has a capital ſufficient, by keeping his wine for three months only, adds conſiderably to the profit.—If a proprietor be merely able to ſtore his crop in caſks in his cellar, long enough to avoid the immediate neceſſity of ſelling for want of caſks, he has an advance of price, which will greatly augment the ratio of his profit: it is very fair to give the cultivator of vines the ſame time that is taken by moſt of his brethren with whom corn is the object, that is to ſay, ſix months from the harveſt. The difference of profit is exceedingly great between the ſale in the vintage, and that of ſix months after. But it is ſtill of more conſequence to obſerve, that the rate per cent. here mentioned, is not on the mere buſineſs of the cultivator, but on the purchaſe of the eſtate upon which the culture is carried on. This makes an enormous difference. If agriculture, in England, yield 15 per cent. and landed property three, throw the two together, and the mean is not more than 5½ or 6; and thoſe who, in England, buy an eſtate, and ſtock, and cultivate it, and make 6 per cent. will not think they are ſuffering, notwithſtanding the accumulated advantages of a century of freedom.

It is this large annual product which in the vine provinces gives bread to ſuch numbers of people; beſide the direct object of common labour, which amounts, as we have ſeen, to 2l. 12s. 6d. per acre, and conſequently is above thrice as high as that of common arable crops; and if they are not in very complete culture, the ſuperiority is much more conſiderable, there is the trade of caſks, which, independent of the employment of coopers, gives a value to the woods of a country, as well as an activity to foreign commerce, by the import of ſtaves and hoops. The props have the ſame effect as our hop-poles, and render willow plantations, as well as common under-woods, much more valuable than they would be otherwiſe. Beſides, there is the circumſtance, that ſo many politicians

cians regard alone, the exportation of the wine, and the caſk or the bottle; forming, whether in the ſhape of wine or of brandy (as I ſhall by and by ſhew), one of the greateſt trades of export that is to be ſeen in Europe; as much the export of French labour, as that of the ſilks of Lyons, or the cloths of Louviers. And after all this, if I be allowed to place laſt, what in truth ought ever to be regarded firſt, that is, the home conſumption, there is the invaluable advantage of a whole people being well and amply ſupplied with a beverage, the effect of their own induſtry, and the reſult of their own labour; and it ſurely will not be thought a ſmall advantage, that a nation has recourſe, for ſupplying this conſumption, to her ſands, gravels, declivities and rocks; that ſhe demands it not of her rich plains, but of thoſe lands which her leſs fortunate neighbours are forced to cover with copſe or rabbits.

But here we are not to forget, that argument is always to give way to fact. From what I have juſt ſaid, the reader is not to conclude that ſuch lands *only* are under vines in France, the contrary is the fact; I found them on the noble and fertile plain of the Garonne; on the richeſt lands in the vale which extends from Narbonne to Nimes; in the vales of Dauphiné and of the Loire; and, in a word, indiſcriminately on every ſort of land in all the wine provinces; but I found them alſo on ſuch rocky and bad ſoils as I have deſcribed, and in ſo great quantities as to ſhew how well adapted they are to ſuch ſoils and ſituations. There are two reaſons why vines are ſo often found in rich plains; the firſt is, the export of wheat being either prohibited, or allowed with ſuch irregularity, that the farmer is never ſure of a price: but the export of wine and brandy has never been ſtopped for a moment. The effect of ſuch a contraſt in policy muſt have been conſiderable, and I ſaw its influence in every part of France, by the new vineyards already planted, or begun to be planted, on corn lands, while the people were ſtarving for want of bread; of ſuch conſequence, in the encouragement of any culture, is a *ſteady unvarying policy!* The fact is the more ſtriking in France, becauſe the vine culture is very much burthened in taxation; but, always poſſeſſing a free trade, it thrives. The ſecond reaſon is, that the culture of this plant is much better underſtood in France than that of corn. An advantageous rotation of crops, and that arrangement of a farm which makes cattle neceſſary to corn, and corn neceſſary to cattle, on which the profit of arable land ſo much depends, is what the French have hardly an idea of. In their practice it is never to be ſeen, and in their books it is never to be read. But their vineyards are gardens; the turnips of Norfolk, the carrots of Suffolk, the beans of Kent, and the cabbages of an Engliſh gentleman, are not ſo clean as the vines of France, while the whole œconomy of the plant is perfectly underſtood, both in theory and practice.

It is a queſtion which I have heard often ſtarted in converſation, whether it be nationally more advantageous that wine ſhould be, as in France, the common-

mon beverage, or beer, as in England? How it ſhould ever become a queſtion I cannot underſtand. We are, of neceſſity, *obliged* to have recourſe to our beſt lands to ſupply our drink; the French, under a good government, would have *all* theirs from their worſt ſoils. The ſands of Sologne, which are paſſed in the way from Blois to Chambord, &c. &c. are as bad as ours in Suffolk and Norfolk, which feed only rabbits. The French ſands, by means of vines, yield 8l. or 9l. an acre, and thoſe of Suffolk not ſo many ſhillings. Through nine-tenths of England, the land that yields wheat in every rotation yields alſo barley. If our hills, rocks, ſands, and chalky declivities gave us our liquor, could we not apply theſe richer ſoils to ſomething better than beer? Could we not, by means of rotations, that made potatoes, tares, beans, and artificial graſſes, the preparatives for wheat alternately, contrive to raiſe infinitely more bread, beef, and mutton, if barley did not of neceſſity come in for an attention equal to what we give to wheat? Wheat, rye, barley, and oats exhauſt, every other crop we raiſe, either actually or conſequentially, ameliorates. Would it be no advantage to ſtrike out one of theſe exhauſters, and ſubſtitute an improver? Would it be no advantage to feed all the horſes of Britain on beans inſtead of oats? Your populouſneſs may be proportioned to your quantity of bread, mutton, and beef. With one-fourth of your land under barley, can you have as much bread, mutton, and beef, as if you were not under the neceſſity of having any barley at all? How few agricultural combinations muſt there be in a mind that can entertain doubts on ſuch queſtions? There is a common idea that wine is not a wholeſome beverage, I take this to be a vulgar error; bad wine, or wine kept till ſharp and acid, may be unwholeſome, but ſo is bad beer, or beer kept till acid: but this has nothing to do with the queſtion. If the lower people be forced, through poverty, to drink bad liquor, the complaint ought not to be that wine is unwholeſome, but that a bad government is unwholeſome: the beer drinkers under ſuch a one, will not have much to boaſt. There may be more ſtrength and vigour of body among the common people in England than among the ſame claſs in France; if this be true, it proves nothing againſt wine. Are the French poor as well fed as ours? Do they eat an equal quantity of animal fleſh? Were they as free? Theſe common prejudices, for or againſt certain liquors, are uſually built on very inſufficient obſervation.

But the enemies of vineyards recur to the charge; *the vine provinces are the pooreſt of the kingdom; and you always ſee miſery among the poor proportioned to the quantity of vines* *.—This is the main hinge on which the argument turns; it is

* So lately as in the Journal Phyſique for May 1790, Monſ. Roland de la Platiere, a gentleman with whom I had the pleaſure of ſome agreeable converſation at Lyons (in the happier period of his life, before he was involved in the miſery and guilt of revolutions), ſays, that of all countries the vine ones are the pooreſt, and the people the moſt wretched! And in the *cahier* of the clergy of Auxerre, it is demanded, that the ordonances againſt planting vines on land proper for corn be executed. P. 19.

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an obſervation that has been made to me a thouſand times in France, and converſation never touches on the ſubject but you are ſure to hear it repeated.—There is ſome truth in it as a fact—there is none as an argument.

There is uſually a conſiderable population in vine provinces; and doubtleſs it is not ſurpriſing, that where there is a great population there ſhould be many poor, under a bad goverment. But there is another reaſon, much more ſatisfactory, which ariſes not at all from the nature of the culture, but from the abuſe of it.

It is the ſmallneſs of the property into which vineyards are uſually divided; a circumſtance carried to ſuch exceſs, that the miſery flowing from it can hardly be imagined by thoſe who are whirled through France in a poſt-chaiſe. The nature of the culture depending almoſt entirely on manual labour, and demanding no other capital than the poſſeſſion of the land and a pair of arms; no carts, no ploughs, no cattle, neceſſarily leads the poor people to this ſpecies of property; and the univerſal practice of dividing it between the children, multiplies theſe little farms to ſuch a degree, that a family depends on a ſpot of land for ſupport that cannot poſſibly yield it; this weakens the application to other induſtry, rivets the children to a ſpot from which they ought to emigrate, and gives them a flattering intereſt in a piece of land, that tempts them to remain when better intereſts call them elſewhere. The conſequence is, their labouring as much as they can for their richer neighbours; their own little vineyards are then neglected; and that culture, which to a more able proprietor is deciſively advantageous, becomes ruinous to inſufficient funds. But a misfortune, greater even than this, is the uncertainty of the crop; to a man of a proper capital, and who conſequently regards only the average of ſeven years, this is of no account; but to the poor proprietor, who lives from hand to mouth, it is fatal; he cannot ſee half a year's labour loſt by hail, froſt, cold, or other inclemencies of the ſeaſon, without ſeeing, at the ſame time, his children in want of bread; before the ample produce comes, which certainly will come on the average account, he finds himſelf in the hoſpital.

This I take to be the origin of that general and too indiſcriminate condemnation of vineyards in France. The poverty is obvious; it is connected with vines, and for want of proper diſtinctions, it is conſidered as neceſſarily flowing from vineyards; but, in fact, it is merely the reſult of ſmall properties amongſt the poor: a poor man can no where be better ſituated than in a vine province, provided he poſſeſs not a plant. Whatever may be the ſeaſon, the poor are ſure of ample employment among their richer neighbours, and to an amount, as we have above ſeen, thrice as great as any other arable lands afford. That culture which demands 2l. 12s. in hand labour only, whether there be crop or no crop, and which employs women and children of all ages, ought not ſurely to be condemned

demned as the origin of diſtreſs among the poor. Attribute the fact to its true cauſe, the deſire and ſpirit of poſſeſſing landed-property, which is univerſal in France, and occaſions infinite miſery. This circumſtance, ſo prevalent in that kingdom, and (comparatively ſpeaking) ſo little known in ours, where the poor are ſo much more at their eaſe than in France and moſt other countries, is very curious to a political obſerver. What an apparent contradiction, that property ſhould be the parent of poverty, yet there is not a clearer or better aſcertained fact in the range of modern politics. The only property fit for a poor family, is their cottage, garden, and perhaps graſs land enough to yield milk; this needs not of neceſſity impede their daily labour; if they have more, they are to be claſſed with farmers, and will have arable fields, which muſt, in the nature of things, be ill cultivated, and the national intereſt conſequently ſuffer.

The explanations I have given of the wine ſyſtem in France will be received, I truſt, with candour. To inveſtigate ſuch queſtions fully, would demand diſſertations expreſſly written on every ſubject that ariſes, which would be inconſiſtent with the brevity neceſſary to the regiſter of travels: I attempt no more than to arrange the facts procured; it belongs to the political arithmetician fully to combine and illuſtrate them.

CHAP. XI.

Of the Culture of Silk in France.

QUERCY.—*Cauſſade.*—IN the avenue leading to this town, two rows of the trees are mulberries, and theſe are the firſt we have ſeen.

Montauban.—Many mulberries here, in rows; and under ſome of them four rows of vines, and then ſix or ſeven-times the breadth of corn. When the leaves are not in time for the worms, or are deſtroyed by froſts, they are fed with lettuce leaves; and if no lettuce, with cabbage, but the ſilk is ſo worthleſs, that the failure is reckoned nearly equal to having none at all.

Toulouſe to Noé.—Mulberry trees are here worth from 6*ſ.* to 20*ſ.* and 30*ſ.* each per annum, according to their ſize.

Noé—Mulberries worth up to 3 liv. per tree, per annum. But ſilk worms have miſſed much for three years paſt.

Narbonne.—Many mulberries; all with pruned flat heads.

Pinjean.

Pinjean.—Olives are a beneficial article of culture, but they prefer mulberries, becauſe they yield a crop every year. On four ſétérées of land they have ſixty trees; and at the ſame time the land yields barley or oats, mown for forage, of which the four ſétérées gives 60 quintals, that ſell at 33*ſ.* the quintal. Single mulberries have paid as far as two louis each, and many one louis. If four ſétérées equal two acres, there are thirty trees on an acre, and the acreable produce of forage will be 52 liv. or 2l. 5s. 6d.

Niſmes to Sauve.—Seven mulberries on an Engliſh rood.

Quéſac.—Mulberry leaves ſell commonly at 3 liv. the quintal. A tree yields from one to eleven quintals: two, three, and four are common. Gathering the leaves coſts 12*ſ.* the quintal. Fifteen quintals of leaves are neceſſary for one ounce of *grain* (the ſeed or eggs of the worm): 20 liv. the mean price of ſilk per lb.: reckon that an olive-tree pays as well as a mulberry.

Many mulberries about Quéſac, and ſome on very poor dry land. In graſs fields the ground is kept dug around them, as far as the branches extend. Remark ſome ſtones laid around many trees, for ſome diſtance from the ſtem.

Eight trees in ſomething leſs than an Engliſh rood.

By information, almonds, in Rouverge, pay better than mulberries, and with much leſs expence and attention; 3, 4, 5, and 6 liv. a tree.

Gange.—Many fine mulberries about this place, which yield from 3 liv. to 8 liv. a tree in common, young ones excluded. They yield to twelve quintals of leaves; in general, three, four, or five. The price varies from 3 liv. to 10 liv. the quintal. They are much more valuable than olives. This year the great cold in April deſtroyed the young buds and hurt the crop greatly. They never think of giving any thing to worms but the leaves; have heard of twenty things, but treat the idea with the greateſt contempt, knowing as they do, by the fabric, the worthleſſneſs of ſilk, if the worms are ſo fed.

Lodeve.—Mulberries are more profitable than olives; yield three, four, and five quintals of leaves, which ſell, in common, at 3 liv.

Mirepoix.—Mulberries are here, but none after, in going from Carcaſſonne to St. Martory.

Auch.—A few mulberries near the town.

It is here to be noted, that from Mirepoix to Bagnere de Luchon, and from thence by Pau to Bayonne, and back by Dax to Auch, a line of much more than 300 miles, I ſaw no mulberry trees.

GUIENNE.—*Leyrac.*—Some few mulberries.

Aiguillon.—A few trees for ſome miles before this place. Behind the chateau, in the town, is a large plantation, formed by the late duke; which, being in the fine vale of the Garonne, the land is cultivated as the reſt, under hemp and

berally offered leaves to the poor people, on eaſier terms than they are ſupplied with them in the ſouth of France, and even gave trees; yet nothing more was done than what his influence and authority forced: and the Provençal family, after ten years experience, pronounced that the climate would do to make ſilk, but not with profit. To his laſt hour, the duke had ſilk made, but not an hour longer; the practice had taken no root: the country people, by whom alone ſuch an undertaking could proſper, ſaw no inducement to go into the ſcheme, and the whole fell at once into utter ruin and neglect on the duke's death; ſo that the trees themſelves were by degrees condemned, and the number remaining at preſent inconſiderable. Certainly no poſitive phyſical proof, that ſilk will not do in Normandy, but it is a preſumptive one, pretty ſtrongly featured. Go into Languedoc, Dauphiné, and Provence, and the poor people do not want the exertions of marſhals of France to induce them to breed ſilk-worms; they have a much more powerful inducement,—the experience that it is their intereſt: had this inducement been preſent at Bizy, the culture would, in more than ten years, have taken root.

BOURBONNOIS.—*Moulins.*—Monſ. Martin, gardener of the Royal Nurſery here, who is from Languedoc, cultivates ſilk with great ſucceſs; he was ſo obliging as to be as communicative as I could wiſh. Trees of two or three years old, yield a few leaves, but to be ſtripped cautiouſly: at eight to ten years, they come very well into yielding. One ounce of *grains*, that is, of the eggs of the worm, requires twenty quintals (one hundred weight Engliſh) of leaves, and yields from 7 lb. to 9 lb. of ſilk. He has made as far as 300 lb. in a year, the produce of 3000 lb. of cocoons; and the worms that year eat 12000 lb. of leaves every day, for four or five days together, and fifty perſons were employed for eight days. The whole buſineſs of hatching and feeding employs a month; the winding is afterwards done at leiſure. For care and attendance of the worms, gathering the leaves, and winding the ſilk, he gives one-fourth of the produce, or about 6 liv. the pound of ſilk; for ſpinning 3 liv.; in all, 9 liv.; reſts profit, 15 liv. The men earn 20*ſ.* to 24*ſ.* a day, and the women 8*ſ.* to 10*ſ.* He prefers this climate for the buſineſs to that of Languedoc, though ſtoves are here neceſſary for keeping the room to the temperature of 18 degrees, Reaumur; whereas in Languedoc they do without fires. The ſeaſon here varies from fifteen to twenty days; the earlieſt is the 24th of April, and the lateſt the 15th of May. If the leaves are not ready, he keeps the hatching back, by lodging the *grains* in a cool cellar. He has known one tree in Languedoc yield 80 liv. a year in ſilk. Moulins and its environs make to the value of 60 or 80,000 liv. a year. Monſ. Martin ſells trees, of two years old, at 20 liv. the thouſand. The diſtance of planting, if for crops, under the trees, thirty feet;

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if no crops, twenty feet. Of the writers that have treated of this ſubject, he prefers Monſ. Sauvages.

In the particulars of an eſtate to be ſold, was one article relative to the product of ſilk; mulberries enough for 12 oz. of grain, yielding 60 lb. of ſilk.

VIVARAIS.—*Maiſſe to Thuys.*—Firſt meet with mulberries in going ſouth from Auvergne. They yield very largely here; I am aſſured, that many trees, in a good year, reach 12 liv. each. That in four years after planting, they begin to produce leaves enough for ſtripping. The beſt of them are all grafted. Trees, fifteen years after planting, have, in a very good year, yielded 6 liv. I was ſhewn a ſmall field that yields, one year with another, 120 liv.; I ſtepped, and found it 50 yards by 70 yards, or 3500 ſquare yards (7l. 4s. 4d. per Engliſh acre); yet the trees were not regularly planted, nor fully; and this beſides the other produce of the ground.

Aubenas.—The ſilk mills here, which are conſiderable, purchaſe the cocoons of the farmer, at 28*ſ.* to 32*ſ.* the pound. The mulberry-trees here are very large.

Villeneuve de Bergue.—Twenty quintals of leaves give one quintal of cocoons, and one quintal of cocoons 10 lb. of ſilk. They reckon that the waſte, *débris & dechet*, pay the ſpinning. Eighteen trees, of ſeven years age, pay 28 liv. a year; but ſome trees, of ten years old, have been known to give 3 liv. each. Three-fourths of an arpent de Paris have been ſold for 400 liv.; the ſoil all rock and ſtone, but calcareous. The trees are grafted before tranſplantation, which is at three years old; price, 12*ſ.* and 15*ſ.* each. The ſecond year after planting they begin to gather. The price of the leaves 3 liv. the 100 lb.; and of gathering 10*ſ.* the quintal. The culture is reckoned more profitable than vines, which are ſometimes grubbed up, to make way for mulberries. Of the ſorts, the *roſe fuille* is beſt. In the road to Viviers, I remarked a tree 2½ feet in diameter; and very large ones are in the bed of a torrent, where no earth (only ſtones) is viſible.

DAUPHINE.—*Montélimart.*—Silk is the great produce of the country; they have mills, where the cocoons are bought, at 27*ſ.* the pound. An ounce of *grains* gives 60 lb. of cocoons, and 12 lb. of cocoons 1 lb. of ſilk: forty middling trees, each yielding a quintal of leaves, being required to feed that proportion of worms. The *grains* are hatched by artificial heat, and the operation demands wood to the amount of 24 liv. to each ounce of grains. A common method of conducting the buſineſs is, for the proprietor of the land to find trees and half the *grains*; the poor people the other half and all the labour; and the parties divide the produce between them. The impediments in the culture are, —1. climate; froſts in the ſpring deſtroy the leaves, and, if at a critical time, there is no remedy. I demanded if they had no ſuccedaneum, in ſuch caſe, in

feeding

feeding the worms with the leaves of ſome other plants? The anſwer was, that experiments had been made upon that point, without any ſucceſs; that the idea, however, was nonſenſe, for the quantity of food was ſo great, as to render it abſurd to think of providing it, not for a certain want, but merely a contingent one; the expence of ſuch a conduct would abſorb all the profit. Nor is it froſts only that are dreaded—great and ſudden heats make the worms fall, and they labour very poorly.——2. The extreme labour of attending the worms, is a great objection to the buſineſs; it is, for the laſt fifteen days, ſo ſevere, as to kill many; and, for the laſt eight days, they are cleaned every day.

Upon a compariſon of the culture of the olive and the mulberry, it was remarked to me, that one great advantage of the olive, was the contracted ſpace in which the roots feed, conſiſting chiefly of a tap-root and fibres, which made the crops ſown under them good; but a mulberry threw out a profuſion of roots, fifteen or twenty feet around, in every direction.

They have been known, at eleven years growth, to yield 200lb of leaves each tree.

The mulberry is found not to like water; for there is in the watered meadows a mound of earth, to keep the water from the roots of theſe trees.

When ſilk-worms are ready to ſpin the cocoon, if they are cut in halves and thrown into vinegar, each worm gives two tranſparent ligaments, very ſtrong, for making fiſhing lines, &c. &c.

Loriol.—Monſ. L'Abbé Berenger, curé of this place, has given an uncommon attention to this culture; he was ſo obliging as to give me the reſult of many years experience on this intereſting ſubject.

Time of Sowing.—There are two ſeaſons; the firſt, with the fruit, freſh, at the end of June:—the ſecond in May, with the ſeed of laſt year, dry; and this is better, becauſe the June ſowing ſuffers ſometimes, if froſts are ſevere, or the weather is both cold and humid. When ſown dry, if too early and cold weather ſucceeds, they are apt to fail. They are often watered.

Tranſplantation.—In April following, thoſe that were ſown in May are tranſplanted, three feet every way, into the nurſery; only half the plants (the beſt) being drawn, the reſt are left till the year after. They are never tranſplanted a ſecond time.

Sort.—The *feuille roſe*, with white or grey fruit, is the beſt; black fruit not known here, but ſaid to be good for leafing late, and eſcaping froſts in the ſpring.

Grafting.—It is beſt to graft, in the nurſery, in May, when they are three years old, at the head, with grafts cut in February preceding, and preſerved in ſand in a cellar: theſe grafts are branches three feet long, which are buried in ſand, except four inches at the end, for three or four knots to ſhoot; if all

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are buried in the ſand, all the knots will ſhoot. At grafting cut off thoſe knots that have ſhot out, and uſe the reſt. The time is after gathering the leaves of the ſtandard to be grafted, when the plants are 5 feet, or 5½ feet high. One year after grafting tranſplant, that is, about April. Graft three or four branches.

Soil.—Good and humid ſands, and ſandy loams are the beſt: warm, forward, rich, and friable: rocky and ſtoney ſoils do well; but all clays are bad. On the lighteſt ſtoney lands, the trees come into bearing much ſooner than in the rich vale, but theſe laſt vaſtly longer; on the rich vale land, two hundred years are a common age for them.

Planting.—In bad land plant at eighteen feet ſquare, in moderate at twenty-four, and in very good at thirty-ſix; and, after ſeven or eight years, there can be no crops under them, if at theſe diſtances. There are two ſorts of trees, the one large ſtandards; and the others dwarf ones, which they call *murier nain*; an arpent contains, of courſe, many more in number of theſe than of the others; and they yield, for the firſt ten or fifteen years, a larger produce, but afterwards the greater trees are more productive. The dwarfs are beſt for being ſet in rows, for ploughing between; they are grafted at 1½ feet high; are never watered. The price of trees 25*ſ.* the hundred, at the age of one or two years; the great trees, at four or five years, for grafting, 20*ſ.* each, at preſent 15*ſ.* each, and grafted. The operation of planting is performed by digging a hole 6 feet ſquare, and 2½ or 3 feet deep; and they commonly lay dung upon the roots.

Cultivation.—The attention with which they manage the trees after planting, merits the higheſt commendation:—after they have been planted two years, a trench is dug around each tree, about two feet deep, which is left open all winter, and filled up again in the ſpring; the year following another is dug, more removed from the tree, which is managed in the ſame manner; and ſo on every year a trench, till the whole land is ſtirred as far as the roots extend. This appears to be a moſt excellent ſyſtem, and preferable to trenching the ground at firſt; as in that way much of it is conſolidated again, before the roots of the young trees reach it.

No crops whatever to be ſown on the land after the trees are of a ſize to have their leaves gathered; as much is loſt in leaves as is gained by ſuch crops.

The trees ſhould never be pruned at any other ſeaſon than March, and but once in two years; the wood pays the expence: they receive one digging per annum, at 6 liv. and a hoeing, at 3 liv. per arpent.

There is another admirable practice known here, and uſed by all ſkilful cultivators, which is, that of waſhing the ſtems of the trees every year, in May,

for four or five years after planting. Monſ. L'Abbé Berenger always practiſes this with great ſucceſs.

Produce.—For the benefit of the young trees, they ought not to be ſtripped for ſeven or eight years after planting into the field; they will pay well afterwards for this forbearance; but the practice is not common. I viewed a young plantation of Monſ. Blanchard, at preſent in the National Aſſembly, who is famous for his attention to his mulberries; the trees were ſix, ſeven, and eight years old, and none of them had ever been ſtripped, and their appearance was very flouriſhing. Monſ. L'Abbé Berenger approves the practice, but has not adhered to it; his trees, however, are very fine, and do not complain; one plantation, of eight or ten years growth, that have conſtantly been ſtripped, are, notwithſtanding, very fine. There are forty on 400 toiſes of land, that this year produced, each tree, 8 lb. of leaves. The beginning of February he planted the land under them with potatoes, which were dug in Auguſt, and produced 40 quintals; among theſe potatoes maiz was planted in April, in ſquares of five or ſix feet, and the produce of that will be five or ſix quintals, at 8 liv. the quintal. He ſhewed me another plantation, of an arpent, of very fine and flouriſhing dwarf trees, which yielded this year 8 lb. of leaves each tree, and 300 lb. on the arpent. They are ten years old; no crops have ever been ſown under them.

The produce of leaves may be eſtimated at 50 lb. from a tree of a toiſe ſquare. The greateſt produce known is 10 quintals, from a tree of fifty years old. At twenty years the medium is two quintals. They increaſe till ſixty years old; but are in good perfection at twenty.

The eggs.—A paper of nine inches by fifteen inches, covered with ſmall leaves, ſtuck full of worms, gives one quintal of cocoons; and this is what they call one ounce of *grains*. But proportions will not hold, for the produce is not increaſed proportionably to an increaſe of quantity.

Hatching.—Retarding the hatching of the worms with particular views, is, in many circumſtances, impoſſible. When once the heat of the atmoſphere is come to a certain pitch, the hatching cannot be retarded by cellars. Monſ. Faujas remarked, that in June they would hatch in an ice-houſe; which ſhews that at a certain age they will hatch in ſpite of cold. They never, however, truſt to the natural heat for hatching them, which always does it too ſlowly; it is done with the aſſiſtance of fire, and in the month of May. They begin to hatch at 20 to 22 degrees (Reaumur); but artificially it is done at 24 degrees. When the eggs happen to have been put in a cellar, at 10 degrees, their common temperature, they afterwards hatch with difficulty, and never well; always beſt when they have to undergo but a moderate change.

Feeding.

Feeding.—In this buſineſs all ſorts of food, except the mulberry-leaf, is rejected, at the firſt mention, as the moſt ridiculous, impracticable, and impoſſible idea, that ever entered the head of a viſionary; and never could be conceived but by thoſe only who amuſe themſelves with a few worms, without taking the the trouble of calculating quantity, expence, and quality of ſilk.

For one ounce of grain, a room of 10 feet by 14 feet, and 12 feet high, is neceſſary; but the larger the better, and with windows only to the north. There ſhould be ten tables, or ſhelves, 6 feet long, and 4½ feet broad, one 18 inches above another; the firſt expence of which 60 liv.

Till the 18th of April there is here no ſecurity againſt froſts. Two years ago there were many leaves before that day, and moſt people began their operations; the leaves were all cut off, and they loſt the year entirely, for it is three weeks before the leaves come again. Monſ. L'Abbé Berenger would not truſt appearances; did not begin till after that day, and had as good a year as at any other time.

The expences are uſually borne between the parties, and amount to half the produce, not including the keeping the utenſils in repair. But if they are paid by the owner of the mulberries, ſome of them amount to as follow:—gathering the leaves, 12*ſ.* to 15*ſ.* the quintal; for gathering the dwarfs, only half the price of the others; wood, 15 liv. for 1, 2, or 3 oz. of eggs in one room; 30 liv. for 6 oz. becauſe in two rooms; 22 liv. 10*ſ.* for labour in the houſe; ſpinning, 40*ſ.* per lb. of ſilk. The waſte is worth 20*ſ.* therefore the expence is 20*ſ.*

For the laſt four or five days, eight men are neceſſary to gather leaves for 20 oz. of grain, their voracity being incredible the latter part of the time.

The price of the leaves, if bought, is 4 liv. to 5 liv. the quintal, never at 3 liv. but has been at 10 liv. From 15 to 18 quintals of leaves give one quintal of cocoons, and one of cocoons gives 9 lb. of ſilk. Cocoons are ſold at 26*ſ.* the pound; ſilk, on an average, at 19 liv. The leaves, diſſected by the worms, are dried, and kept for hogs, ſheep, &c. being worth 4 liv. the quintal; and an ounce of grain yields two quintals of ſuch: and the dung of the worms, from an ounce, is worth 4 liv. more, being excellent; the beſt indeed of all others.

Two brothers here, Meſſrs. Cartiers have had as far as 80 quintals of cocoons. Monſ. Berenger's three hundred trees on an arpent, at 8 lb. of leaves each, are 24 quintals; and, at 4 liv. the quintal, amount to 96 liv.; and as 16 quintals of leaves give 9lb. of ſilk, at 19 liv. it is 171 liv. and for 24 quintals 256 liv. the half of which is 128 liv.; hence, therefore, to ſell the leaves at 4 liv. the quintal, does not anſwer equally with half the produce (128 liv. per arpent de Paris, is 6l. 4s. 3d. per Engliſh acre).

PROVENCE.—*Avignon.*—At ten years growth the mulberries yield a conſiderable produce; at that age they give 100lb. to 150lb. of leaves, but not

common. For one ounce of grain, five or ſix very large trees are neceſſary; or, if the leaves are bought, to the amount of 24 liv. to 30 liv. The ounce will give from 40 lb. to 50 lb. of cocoons, or 5 lb. of ſilk; but more commonly 12 lb. of cocoons for 1 lb. of ſilk. Gathering the leaves, 10*ſ.* or 12*ſ.* the quintal, one with another, dwarfs and ſtandards. The waſte pays the ſpinning.

Aix.—Mulberries, beyond all compariſon, more profitable than olives; will give 3 liv. or 4 liv. per tree, more regularly than olives will 10*ſ.*; but the great plantations of olives are on barren rocks that will not do for mulberries.

Tour d'Aigues.—One ounce of grain requires 15 quintals of leaves, and gives 50 lb. of cocoons; that is, 50 lb. in a ſmall undertaking, like the houſe of a poor family; but not more than 30 lb. in a large building. Monſ. the Preſident has, however, had 75 oz. of grain that gave 40 lb. one with another: 14 lb. of cocoons give 1 lb. of organzine ſilk.

On good land, twenty trees, of ten years old, will give 15 quintals of leaves. The waſte, with the addition of 10*ſ.* per lb. will pay the ſpinning. Wood is 12*ſ.* the quintal, and 1½ quintal will wind and ſpin 1 lb. of ſilk: and one quintal of charcoal will make 3 lb. of ſilk. The common calculation is 10 quintals of charcoal for 1 oz. of grain.

Labour and fuel, 40*ſ.* per lb. of ſilk, excluſive of gathering the leaves; but the common method is to find the trees and the grain, and give half the produce for all the reſt. The whole buſineſs, excluſive of winding and ſpinning, employs exactly a month.

Hyeres.—This article is here but little regarded; the number is not conſiderable, nor do they pay nearly the ſame attention to them as in Dauphiné. A tree of twenty years pays about 30*ſ.*; and ſome, of a very great ſize and age, 6 liv.

Frejus.—Cloſe without the town, on the banks of a ſmall canal of irrigation, are five or ſix of the largeſt mulberries I have ſeen, growing cloſe to the water's edge; from which it ſhould appear, that they have here none of that objection to water which was mentioned to me at Montélimart.

Eſtrelles.—At the inn here there is a mulberry-tree which yields black fruit, and leaves of a remarkable ſize. I aſked the maſter, if he uſed them for ſilk-worms? *Never*, he replied, *they are no better for them than elm, oak, or pine leaves: it is the white mulberries that are for worms.* So inaccurately underſtood is this point, even in the ſilk countries; for in Languedoc they told me, all ſorts were given indiſcriminately. This tree would be worth 2 or 3 louis a year.

To these notes, taken by myſelf, I ſhall add a few others, for the more general elucidation of the ſubject.

Languedoc

Languedoc yields, in a common year, from 500 to 1200 quintals of ſilk*. I have ſearched books in vain for information of the quantity of ſilk produced in all France; but I find the number of looms which work it, by one account, 29,000†, of which 18,000 at Lyons; but by a later and more authentic account, there were at Lyons only 9335 looms, which worked about 2,000,000lb.‡ and in all France 17,500 looms; which, in the ſame proportion, would work about 3,763,000lb. In 1784, ſhe imported raw ſilk to the value of 29,500,000liv. and in 1787, to 28,220,000 liv.; call it 29 millions, and 20 liv. the mean price per lb. it is 1,450,000lb.‖; which will leave about 2,310,000lb. for the home produce, or 46,200,000liv. which is ſo groſs an impoſſibility, as to aſcertain to a certainty, the exaggeration of the number of looms, and confirms, in a freſh inſtance, the many errors in the new Encyclopædia. If Languedoc produces only 100,000lb. all the reſt of the kingdom cannot produce twenty times as much; for the culture is confined to three or four provinces, except ſmall quantities, that enter for little in a general account. I was informed, at Lyons, that the home growth was about a million of pounds weight, of two-thirds of the value of the imported per lb. or about 20 liv. This makes the growth to the value of 20,000,000liv. or 875,000l. If ſo, Languedoc muſt produce more than 100,000lb. for that province muſt be at leaſt one-fourth, if not one-third of the whole. I muſt confeſs I have my doubts upon this point, and think that even one million of pounds much exaggerated, for I croſſed the ſilk country in more than one direction, and the quantity of trees appeared inconſiderable for any ſuch produce. But admitting the authority, and ſtating that the kingdom does produce to the amount of 8 or 900,000l. ſterling, I muſt remark, that the quantity is ſtrangely inconſiderable, and ſeems to mark, that the climate has ſomething in it vaſtly inferior to that of Italy, for the production of this commodity; in which country there are little principalities that give more than the whole kingdom of France;—yet, to human feelings, there is no compariſon between the climate of France and that of Italy; the former is better, beyond all queſtion. But the ſpring froſts (found in Italy alſo) are what bring the greateſt deſtruction on this culture, and will for ever retard its progreſs greatly in countries expoſed to them. In 1788, there was a general failure in the ſouth of France, yet acroſs the Pyrenees, in Catalonia, the crop was abundant, merely becauſe the ſpring froſts did not paſs thoſe mountains.

* *Conſiderations ſur le Commerce de Bretagne*, par Monſ. Pinczon du Sel des Monſ. 12mo. p. 5.

† *Lettre ſur les Muriers & Vers a ſoie Journal Oeconomique.* 1756. vol. ii. p. 36.

‡ *Encyclop. Methodique Manuf.* tom. ii. pt. 2. p. 44.

‖ A very late writer was ſtrangely miſtaken, in ſaying, that France imports 20,000,000 of pounds weight. *Mr. Townſhend's Journey through Spain*, vol. i. p. 52.

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In the diſtricts and ſpots of the ſouthern provinces, where the climate has, from experience, been found favourable to ſilk, there is no want of exertion in following it; and about Loriol and Montélimart, it is cultivated with more energy than in any part of Lombardy, yet at ſmall diſtances there are no mulberries, though the proprietors are as rich and as induſtrious as where they are found. The ſame obſervation is to be made every where, and ſeems to mark a great dependence even on the locality of climate, if I may hazard ſuch an expreſſion. Where the culture ſucceeds well, it appears, from the preceding minutes, to be highly profitable, and to form one of the moſt beneficial objects that can attract the attention of the induſtrious.

The Society of Arts at London, have, for many years, offered premiums for mulberries and ſilk in England; and much has been written and argued in favour of the ſcheme, which I take to be a great, but harmleſs folly: it may miſlead and decieve a few ingenious ſpeculative people, who may, for what I know, in the courſe of a century, arrive at ſuch ſucceſs as the late King of Pruſſia boaſted, that of making a few thouſand pounds of miſerably bad ſilk, after forty years exertion. Such ſucceſs is a real loſs; for the ſame attention, time, capital, and encouragement, given to productions natural to the climate, would have made twenty times, perhaps an hundred times, the return. That ſilk may be made in England I have no doubt; but it will be made on the ſame principles, and attended by the ſame dead loſs. The duke of Belleiſle made ſilk, in Normandy, and if he had been a great ſovereign, his hundreds would have been thouſands of pounds; but all was loſs, and, therefore, the ſooner it dropped the better. Another duke failed, not quite ſo much, in the Anguomois; and a third planted mulberries to loſs on the Garonne; his neighbours did the ſame; but grubbed them up again becauſe they did not anſwer. At Tours, the fineſt climate of France for fruits, and by conſequence well adapted for mulberries, they ſucceed tolerably, but the culture does not increaſe, which carries with it a preſumption, that more ſteady heat in ſpring is wanted than the nothern provinces of France enjoy. Such circumſtances bear with great force againſt any ideas of ſilk in England, where the heat is never ſteady; and leaſt of all in ſpring, where late froſts cut off vegetables much hardier than the mulberry, even ſo late as the end of May and beginning of June; and where I have ſeen potatoes turned black by them, even on Midſummer day.

The minutes are invariably deciſive, on the queſtion of feeding worms with any thing but mulberry leaves; the utter impracticability of that ſcheme is ſhewn in a manner too ſatisfactory for any doubts to remain; and the difficulty of retarding the hatching of the worms beyond a certain period, though not proved with equal deciſion, is yet placed in a light not a little queſtionable. It is upon theſe two modifications of the common practice, that ſilk in England confeſſedly depends;

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one of them is a vague groundleſs theory; and the other too uncertain to be relied on. But I muſt further remark, that froſts, in ſuch a climate as England, as well as abroad, are to be looked for *after* the leafing of the mulberry; and conſequently, that the power of retarding the hatching of the eggs would be uſeleſs; the worms in that caſe muſt be put upon other food, which, with ſmall parcels, would make bad ſilk, and with large ones would demand an expence impoſſible to ſubmit to every year for a mere contingency that might be demanded only once in three or four. To urge the example of Brandenbourg is idle: in the firſt place, all continental climates are more regular than inſular ones, and therefore the climate of the King of Pruſſia's dominions may be better for the buſineſs; yet with this advantage Normandy failed. In 1788, that is, after forty years exertion, they made, in all the Pruſſian territories, 11,000 lb.* of pounds lighter than French ones. And the author I quote on this ſubject, who commends the project, informs us, that in Brandenbourg, to make a pound of ſilk, demands one-fourth more cocoons than in the ſouth of France †; and that the ſilk thus made, is ſo bad, that it will do only for certain objects ‡; of the climate he ſays, that it is not favourable enough § for the buſineſs. What encouragement is to be collected from this detail, when it is conſidered that forty years effort of the firſt talents in the world, ſeconded by boundleſs power, forcing plantations and laviſhing premiums, have been able to drive this nail, that will not go but againſt nature, to no greater extent than 11,000 lb. of bad ſilk in all the Pruſſian dominions? In my opinion, the reſult of ſuch an experiment yields a more complete condemnation, than if it had never been tried at all in ſuch a climate, and ought to be a leſſon to us in England, not obſtinately to perſiſt in ſuch fooliſh attempts, calculated only to bring ridicule on ſocieties, and diſappointment to individuals. In all probability, the ſilk made in Pruſſia coſt every year ten times more than it is worth; that is to ſay, the ſame royal attention, the ſame premiums, the ſame favours, as giving trees and ſilk eggs,—the ſame powerful inſtigations to rectors and cureés of the crown livings, &c.—had they been exerted to people the heaths of Brandenbourg with ſheep, would have yielded, in *wool alone*, ten times the value of 11,000 lb. of ſilk; which, if we value it 12s. a pound, being ſo inferior, amounts only to 6600l.; —a pretty article of produce for forty years efforts of the moſt energic government in Europe! 50,000 ſheep, at 3s. a head in wool, go much beyond it, throwing mutton out of the queſtion.

An idle error in England, is the idea that this culture demands the labour only of women and children, and old and infirm perſons: the contrary appears

* *Mirabeau Monarch. Pruſſ.* tom. i. p. 180. † Tom. ii. p. 166.

‡ Tom. i. p. 180. § Tom. ii. p. 166.

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the fact; eight men are neceſſary for gathering the leaves for twenty ounces of grain, during four or five days, when the worms are moſt ravenous: and the work of gathering is that of men at all times; for the leaves are not *picked*, but *ſtripped* along a branch, by force and hardneſs of hand. And even the feeding and cleaning worms is ſo far from being light work, that it is, on the contrary, very ſevere, ſo as even to kill ſome of the poor people that follow it up; as the induſtrious will follow up all work ſeverely. The culture is therefore very far from what it has been repreſented in England, as being all net profit, demanding only women, children, and the infirm; on the contrary, it would demand many able men, at a buſy ſeaſon of the year, when they could be ill ſpared; and if a propoſal was to be made at ſuch a ſeaſon to a farmer, that he muſt ſpare men enough to gather all the leaves of many hundred pollard trees of any ſort, he would probably ſay the price of mulberry leaves in the ſilk countries would not pay him; and that double that price would not be an inducement to him, at ſuch a ſeaſon, to derange his buſineſs, and take his men from neceſſary work, for employing them on ſuch a buſineſs. If it is aſked, how the ſame thing can be done in ſilk countries? I anſwer, that labour is but half the price of Engliſh labour, owing to cauſes explained in other chapters; that the multiplied ſubdiviſion of landed property fills many of thoſe countries with hands,—many idle, and many not half employed. To them the culture is highly valuable; but to introduce it in a country, even if the climate would permit, conſtituted and politically arranged, in a manner and upon principles abſolutely contrary, would be attended with difficulties and expences, not in the contemplation of people very ingenious, perhaps, who have amuſed themſelves with ſilk-worms, and paid an attention to them, being a pleaſure, which, if commercially valued, would poſſibly amount to fifty times the value of all the ſilk they make.

CHAP.

CHAP. XII.

Of Cattle in France.

EVERY part of agriculture depends ſo immediately on the quantity of live ſtock, that a farming traveller cannot give too much attention to ſo material a part of his purſuit. The candid reader will not, however, look to any traveller, that does not reſide long in a place, for ſuch information, as is alone to be acquired by ſuch reſidence. He who ſtays a week will gain knowledge beyond the attainment of a day; and the attention of a month will produce fruits beyond the reach of him whoſe obſervations are limited to a week, and yet remain very ſuperficial, when compared with the reſearches of others who live on the ſpot. A mere traveller ſhould gain what his opportunities allow, and what he is thus able to gain is not the less valuable, becauſe larger powers would have commanded a greater harveſt.

PAYS DE BEAUCE.—*Toury, &c.*—Their beſt cows ſell at 150 liv.; they give twelve or thirteen bottles a day.

Orleans.—They have a remarkable cuſtom of letting chick-weed get a head in their vineyards, which they pluck in May and dry. This they boil in water with bran for their cows, giving it thrice a day, and find that it makes them give double the quantity of milk they would do on any other food. This application of a common plant, that might eaſily be cultivated, and got off time enough for a crop of turnips, probably improving the land, deſerves a trial. The fact is curious.

SOLOGNE.—*To La Ferté.*—Make hay of the weeds of their vineyards, and are the chief ſupport of their cows; do not boil, but give them in bran and water. In ſummer feed with graſs and vine cuttings.—A cow, that gives one to three bottles a day, ſells at 90 liv.

La Fuzelier.—The cows ſmall, and very like Alderneys. Plough bullocks of the ſame breed.

BERRY.—*Verſon.*—A pair of oxen, ready to work, ſell at 400 liv. (17l. 10s.); and when old and paſt labour, but lean, 300 to 340 liv.

Argentan.—A good pair of oxen ſell at 400 liv.; common ones 300 liv.; very fine to 600 liv. (26l. 5s.) All the cattle here are cream coloured, as well as the droves we have met going to Paris.—A cow, not the largeſt, ſells at 150 liv. (6l. 11s. 3d.)

LA MARCHE.—*To Boiſmandé.*—Very fine bullocks, well made, and in great order, 600 liv. (26l. 5s.) the pair. Theſe oxen are of a beautiful form; their backs ſtrait and flat, with a fine ſpringing rib; clean throat and leg; felt well; and are in every reſpect ſuperior to many breeds we have in England.

La Ville Aubrun.—Work their cows, but they do not give as much milk as if not worked. A good one ſells, with its calf, at 150 liv. (6l. 11s. 3d.) They fatten oxen here with *raves*, a ſort of turnip; begin to uſe them in October or November, and laſt generally about three months. To fatten a pair of good oxen would take 45 cart loads, cut in pieces, and 20 quintals of hay: when the raves are done, they give the flour of rye or other corn, with water enough added to form a paſte; this they leave four or five days to become ſour, and then they dilute it with water, thicken it with cut chaff, and give it to the oxen thrice a day; when fed with raves the oxen do not want to drink. Such a detail would imply a turnip culture of ſome importance, but though hoeing is not abſolutely unknown, yet the turnips may be conjectured, from the common management, being never to hoe, fearing to cut up the crop by it. The young plant is ſometimes eaten by the fly, in which caſe they ſow again; froſt ſomtimes damages the roots, but never deſtroys them entirely. Often ſow wheat after them, and do not cultivate clover; thus three-fourths of the merit of the culture is loſt.

Baſſie.—Their raves yield, according to the year, two or three cart loads per boiſerée of land, about eight of which make an Engliſh acre. A pair of good oxen will eat a cart load in two days, but have hay with them: they are as fond of this root as horſes are of oats: they finiſh with flour of rye, mixed as before-mentioned: they aſſert that the oxen like it the better for being ſour, and that it anſwers better in fatting them. They eat about a boiſeau a day (weighs 22lb.) and never give this acid liquor without chopped hay. It is proper here to remark, that, in coming to Paris, we have met a great many droves of theſe oxen, to the amount, I gueſs, of from twelve to fifteen hundred, and that they were, with few exceptions, very fat; and, conſidering the ſeaſon, May, the moſt difficult of the year, they were fatter than oxen are commonly ſeen in England, in the ſpring. I handled many ſcores of them, and found them an excellent breed, and very well fattened.

LIMOUSIN.—*To Limoges.*—A pair of good oxen will eat a cart load of raves a day; begin to feed the end of October: after the raves, give rye-paſte as deſcribed above, but with the addition of a *leven (levain)* to the paſte, to quicken the fermentation, and make it quite ſour: at firſt the oxen will not drink it, but they are ſtarved to it; uſually take it the ſecond day, and after they have begun like it much, and never leave a drop. Saw a pair bought laſt winter for 1100 liv. (48l. 2s. 6d.); but ſuch as are ready for work, ſell as dear as fat ones, which is remarkable. An arpent of raves yields forty cart loads; and a pair of good oxen will

will eat one load a day. They have two kinds; one very large and flat; the other more round, and with a root that enters the ground deeply. They generally manure thoroughly for them, in March, and plough in ſo early, that the dung may be quite rotten and mixed with the ſoil by the end of June. Begin to ſow a fortnight after Midſummer: they are not hurt by the froſt when it thaws with rain, but are apt to rot when it thaws with the ſun. About Chriſtmas they plough up the part eaten, and ſow rye, the reſt for oats.—They plough their cows, milking them once a day, from three to five bottles.

Limoges.—The great ſtaple of the whole province is fat cattle, ſent to Paris and other towns, as well as hogs, that go for ſalting to the ſea ports. The cattle are all of a yellow cream colour, with no other diſtinction than having, one in an hundred perhaps, a tendency to a blood red: all have horns of a medium length; legs ſhort in proportion to their carcaſſes, which are deep and heavy; the ſhape in general very good; the back ſtrait and broad; the rib ſpringing, and conſequently well arched; the hips and rumps very fat; the tail riſing high from the rump; which I note, not becauſe ſuch points are of *real* importance, but becauſe it is eſteemed by ſome as a proof of a bad breed: the weight I gueſs to be from ſixty to ſeventy ſtone (14lb.); ſome riſe to eighty, and a very few may be ſo low as fifty. Their hogs are many of them large: ſome with lop ears like our old Shropſhire's.

St. George.—The ſame breed of oxen continues here, but hardly ſo large; they are always kept in high order: a pair draws the weight commonly of 2000lb. and ſupports ſuch labour well. They rear calves by keeping them eight or ten months with the cows.

Uſarch.—Fatten their oxen with raves, as above, and then with rye-flour, made into a paſte with leaven, and given ſour, as before deſcribed. They alſo fatten ſome with potatoes, mixed with cheſtnuts, and alſo alone; but in either caſe boiled thoroughly, and given freſh as boiled every day. They have a great opinion of their fattening quality: they feed their cows alſo with this root, and find that it gives a great increaſe of milk.—Calves reared, either for oxen or cows, ſuck ten or twelve months, which is the univerſal practice.

QUERCY.—*Brive to Creſſenſac.*—A practical farmer, that has the largeſt oxen I had met with, gave me the following account:—they fatten with maiz, but, in order to render it tender, pour boiling water on it, cover it up cloſe, and give it to the cattle the ſame day; and in this method it is a moſt excellent fattener, both of oxen and poultry. But, in order to make them fatten ſooner and better, this farmer gives them, every night, and ſometimes of a morning, a ball of pork-greaſe, as large as an apple; he ſays this is both phyſick and food, and makes them thrive the better.

To Soulliac.—Fat their oxen here alſo with raves, and give them alſo to lean beaſts; the maſter of the poſt town were we ſtopped ſays, that he ſent laſt year to Paris, four raves that weighed 100lb. They ſoil their oxen with crops of the *vicia latharoides*, and of the *lathyrus ſetifolius*; of theſe plants he ſpoke ſo highly, when given in the ſoiling way, in the ſtable, that he ſaid the oxen became ſo fat, that they could not get out of the ſtable if they were not worked. He ſhewed me ſome oxen that did not allow a doubt of the truth of what he ſaid, for they were as fat as bears. The fact of hog's greaſe being given, was here confirmed; it is given to increaſe the appetite, and anſwers ſo well, that the beaſts perfectly devour their food after it, and their coats become ſmooth and ſhining. The moſt fattening food they know for a bullock, is walnut oil-cake. All here give ſalt plentifully, to both cattle and ſheep, being but 1*ſ.* a pound. But this practice is, more or leſs, univerſal through the whole kingdom.

Cahors.—Nearly all the draft cattle are mules, and yoked as oxen in England, only collars to the yoke inſtead of bows. Cows and oxen all cream-coloured; very good, and in fine order.

LANGUEDOC.—*Toulouſe.*—Very fine cream-coloured horned oxen; a pair good working ones ſell at 25 louis.

St. Gaudents.—Price 120 liv. (5l. 5s.); in the winter kept in ſtables, and fed upon hay.

Bagnere de Luchon.—Every pariſh in theſe mountains has common paſtures for their cattle and ſheep, and each inhabitant has a right to ſend as many as they can feed in winter. They are on the mountains three or four months, under the care of people who milk the cows, goats, and ewes, and give the proprietor, at the end of the period, two cheeſes, of 18lb. for each cow; or four goats; or ten ewes; the price of the cheeſe is 5*ſ.* the lb. but 10*ſ.* at a year old, and the overplus, if any, is their reward. A cow is reckoned to pay above 2 louis a year, valuing the calf, as they do, at a louis. A pair of cows, ſtout enough to be worked, ſell at 10 to 12 louis; and a pair of oxen 12 to 15 louis.

BASQUE.—Informed by a gentleman, at Bagnere de Luchon, that the mountains in this province afford a very great ſupply of food, in ſummer, for cattle, which are ſent to winter on the *landes* of Bourdeaux, where they juſt get a living on weeds, rough graſs, branches of trees, &c.; and that they pay only 5*ſ.* a head for wintering theſe cattle, which is perfectly incredible; but I note it as reported. He alſo informs me, that thoſe mountains of Baſque, and alſo of Navarre, breed moſt of the oxen that I ſaw in Limouſin; they are ſold thither calves; and are all cream-coloured, or yellowiſh.

LANGUEDOC.—*Pinjean to Montpelier.*—Ploughing with fine large oxen, in good order; ſome cream-coloured, others deep red; middling horns. The ſame

ſame breed has been found all the way, almoſt from the Loire to Barcelona; and from Calais to the Loire, variations of the ſhort-horned Alderney, or Norman cow.

BEARN.—*Navarens.*—Cream-coloured cows, 100 liv. to 120 liv.

GASCOIGN.—*St. Palais to Anſpan.*—In 1786, on theſe mountains, the ſcarcity of forage being very great, they cut much fern and made hay of it, and it anſwered well; horſes, mules, and young cattle, eat it freely; but it was cut early. Through this country, and nearly to Bayonne, they fatten oxen with raves, which they cultivate carefully for an after-crop. They anſwer perfectly well, without other food being given; when the raves are done, they ſometimes give maiz-flour, but dry, knowing nothing of the Limouſin method.

Port St. Marie.—Very fine cream-coloured oxen.

Aguil'on.—Ditto, very fine and beautiful.

Tonnium to La Morte Landron.—As we advance on the Garonne, the oxen are yet finer; meet common ones at 600 liv. and 700 liv. the pair; but ſome very fine that riſe to 1000 liv. and 1200 liv. (52l. 10s.) as they are in the plough; all are, however, in fine order, and many fat. Breed their own cattle; a pretty good cow ſells at 250 liv.; harneſs and work them as oxen, but gently while they give milk.

La Réole.—Work their cows: put oxen to work at three years old, and keep them to it four, eight, and even ten years, according as they are found fit for it. Riſe in price to 1200 liv. the pair. The leaſt weight they are put to draw, is 20 quintals (a ton Engliſh) a pair; but good oxen draw 30 quintals with eaſe: all harneſſed by the horns; they are fed now upon maiz leaves, which are ſo excellent a food for them, that it is ſown in ſucceſſion thickly for mowing for ſoiling. Give alſo at preſent vine leaves, which are very good food. See them ſhoe an ox; they are faſtened by the horns in a ſhoeing ſtall, and lifted from the ground, if wanted, by two broad bands of hemp, that paſs under the belly. The ſhoe turns over the toe, or hoof, as in England; ſhoe for ploughing as well as for the road.

Barſac.—Oxen, through all this country, where they are found fine, are dreſſed as regularly every day as horſes.

ANGOUMOIS.—*Barbeſieux to Petignac.*—Cream-coloured oxen; 20 louis to 25 louis the pair.

POITOU.—*Poitiers.*—Red-coloured oxen, with a black tinge in the head; the ſign of the Poitou breed.

Chateaurault.—Good cream-coloured and red oxen, but they have declined ſince Bourdeaux. The good ones here ſell at 25 louis the pair. They plough with a pair, without driver or reins.

Amboiſe.—Cream-coloured, and ſome blackiſh; and, which ſhews we are got to the Loire, ſome Norman ones, with mixtures. This great river is the ſeparation

ſeparation of breeds in a remarkable manner. All the way from Tours, to Blois, they raiſe raves for cows and oxen, but never hoe them; and the ſcale not at all reſpectable.

Petiviers.—Cows quite the Norman breed, and the earth tilled by horſes.

ISLE OF FRANCE.—*Liancourt.*—Exceedingly deficient. Some poor ill fed cows upon the commons were all that I ſaw, except the Dutcheſs of Liancourt's dairy of Swiſs cows. Of oxen and fatting beaſts they have none. Very fine fat beef appeared at table, which came from Paris, I think.

Braſſeuſe.—Madame la Viſcounteſſe du Pont's dairy of cows fed entirely with lucerne, and the butter excellent; I admired it much, and found the manufacture quite different from the common method. The milk is churned inſtead of the cream. Her dairy-maid is from Bretagne, a province famous for good dairy-maids. The evening's milk and the morning's are put together, and churned as ſoon as the latter is milked; the proper quantity of ſalt is added in the churn, and no waſhing or making in water, which theſe dairy-maids hold to be a very bad method. Finer butter, of a more delicate flavour, was never taſted, than procured by this method from lucerne.

Comerle en Vexin.—This part of the province is famous for fatting calves for the Paris market. I had gathered ſome circumſtances at Marenne, and they were confirmed here. All is known at Paris under the name of Pontoiſe veal, but it comes chiefly from this country. The farmers here are moſtly, if not all, in the ſyſtem of ſuckling. The cows are of the Norman ſhort-horned breed, nearly reſembling our Alderney; thoſe of three conſiderable farmers, whoſe herds I viewed, were ſo unexceptionably. The management of their cows is to keep them tied up conſtantly, as far as food is concerned, but turned out every day for air and exercise, during which time they pick up what the bare paſtures yield. Their food is given in the houſes, being ſoiled on lucerne, ſainfoin, or clover, mown freſh every day, while they give milk, but hay and ſtraw in winter. The calves alſo are, in general, tied up in the ſame houſe; thoſe I ſaw, both cows and calves, were all littered; but they ſeemed to have ſo little attention to keep them clean, that I enquired the reaſon; and was told, that they are ſometimes ſuffered to reſt on their dung till it riſes high, by the addition of freſh ſtraw, but that no inconvenience is found from it. Having been aſſured that they fed their calves with eggs, for giving reputation to the veal of Pontoiſe, I enquired into the truth of it, and was aſſured that no ſuch practice was known; and that the reaſon of the ſuperiority of the veal of Pontoiſe, to that of Normandy, from which province moſt of the other calves come, was ſimply that of making them fatter by longer ſucking; whereas the Norman cuſtom was to feed them with ſkim milk. In this country of the Vexin, they are in the cuſtom of keeping them till they are of a large ſize: I ſaw ſome of four

four months old, valued at 4 louis each, and that would be worth 5 louis in another month; ſome have been ſold at 6 louis; and more even than that has been known. I felt one calf that ſucked the milk of five cows. It was remarkable to find, that the value of many fatting calves I examined was nearly what it would be in England; I do not think there was 5 per cent. difference. They never bleed them to whiten the fleſh, as is done with us. Some of the farmers here keep many cows; Monſ. Coffin, of Commerle, has forty, but his farm is the largeſt in all the country; the country people ſay it is 20,000 liv. a year.

PICARDIE.—*St. Quintin.*—All the way from Soiſons hither, the cattle are ſome black, and black and white, which is very uncommon in France.

Cambray to Bouchaine.—Feed their cows, and fatten oxen and cows, on carrots. They reckon that no food is ſo good, for giving much and excellent milk. For fattening an ox they ſlice them into bran: but they remarked, that in fattening, the great object was to change their food; that a middling one, with change, would go further than a good one without; but in ſuch change, carrots rank very high.

FLANDERS.—*Valenciennes to Orchies.*—Finding that they fed cattle with linſeed-cakes, I inquired if they uſed any of their immenſe quantity of coleſeed-cakes for the ſame uſe? And was aſſured that they did; and that a beaſt, with proper care, would fatten on them, though not ſo well as on linſeed-cake; alſo that they feed their ſheep with both. For fattening beaſts and for cows, they diſſolve the cake in hot water, and the animal drinks, not eats it, having various other food given at the ſame time, as hay, bran, &c.; for there is no point they adhere to more than always to give variety of foods to a fattening beaſt. Their cows, of which they are very proud, are Dutch; not large, though bigger than the Norman breed; they are red, or red and white, with a few black; the horns ſhort and curled inwards, forward. They are fed in the houſe the whole year round, but kept clean with the greateſt attention. They boaſt of their butter being equal to any in the world; and I was aſſured of a cow that gave 19 liv. (16s. 7½d.) in butter every nine days. They feed them with potatoes, which give excellent butter; and with turnips, which give as bad. Cows ſell at 150 liv.

To Lille.—All the cattle tied up in houſes, as they aſſured me, the year round; I inquired into their motives for this, and they aſſerted, that no practice is, they think, ſo waſteful as letting cattle paſture abroad, as much food, or perhaps more, being ſpoiled than eaten; the raiſing dung alſo is a great object with them, which ſtands ſtill, to their great loſs, when cattle are abroad.

Their cows were now (November 4,) feeding on turnips and cabbages. In every cow houſe I ſaw a tub of bran and water, which is their principal drink; boiled

boiled with bran in it is greatly preferred, but ſome give it without boiling. Such minutiæ of practice ſeems only poſſible on a little farm, where the hands are very numerous compared with the quantity of land; but it merits experiment to inquire, how far boiling all the water drank in winter can anſwer. Without experiment, ſuch queſtions are never underſtood. All the cows I ſaw were littered, but the floors being flat, and without any ſtep at the heel, they were dirty.

NORMANDIE.—*Neufchatel.* There are dairies here that riſe to fifty cows, the produce of which in money, on an average, rejecting a few of the worſt, is 80 to 100 liv. including calves, pigs, butter, and cheeſe. In winter they feed them with ſtraw; later with hay; and even with oats and bran; but not the leaſt idea of any green winter food. The vale from hence to Gournay is all full of dairies, and ſome alſo to Dieppe. One acre of good graſs feeds a cow through the ſummer.

To Rouen.—Good cows give three gallons of milk a day; they are of the Alderney or Norman breed, but larger than [illegible] as come commonly to England.

Pont au Demer.—Many very fine graſs incloſures, of a better appearance than any I have ſeen in France, without watering; grazed by [illegible] Norman cows, larger than our Alderneys, but of the ſame breed: I ſaw [illegible] in one field. In the height of the ſeaſon they are always milked three times a day; good ones give three Engliſh gallons of milk a day. A man near the town that has got cows, but wants paſture, pays 10*ſ.* a day for the paſturage of one, which is a very high rate for cattle of this ſize.

Pont l' Eveque.—This town is ſituated in the famous Pay d'Auge, which is the diſtrict of the richeſt paſturage in Normandy, and indeed of all France, and for what I know of all Europe. It is a vale of about thirty-five miles long, and from half a mile to two miles over, being a flat tract of exceedingly rich land, at the bottom of two ſlopes of hills, which are either woods, arable, or poor land; but in ſome places the paſture riſes partly up the hills. I viewed ſome of theſe rich paſtures, with a gentleman of Pont l'Eveque, Monſ. Beval, who was ſo good as to explain ſome of the circumſtances that relate to them. About this place they are all grazed by fatting oxen: the ſyſtem is nearly that of many of our Engliſh counties. In March or April, the graziers go to the fairs of Poitou and buy the oxen lean at about 240 liv. (10l. 10s.): they are generally cream coloured; horns of a middle length, with the tips black; the ends of their tails black; and tan coloured about the eyes, which are the diſtinctions of the Poitou breed. At Michaelmas they are fat; and ſent to the fair at Poiſſy, that is Paris: ſuch as are bought in at 240 liv. lean, are ſold fat at 350 to 400 liv. (15l. 6s. 3d. to 17l. 10s.) An acre of good paſturage carries more than one of

of theſe beaſts in ſummer, beſides winter fattening ſheep. This acre is 4 verges, each 40 perches, and the perch 22 feet, or a very little better than 2 Engliſh acres. The rent of the beſt of theſe paſtures (called *herbages* here) amounts to 100 liv. (4l. 7s. 6d.) per Norman acre, or nearly 2l. 3s. 9d. the Engliſh; the tenant's taxes add 14 liv. (12. 3d.) or 6s. 1½d. per Engliſh acre. The expences may be ſtated thus:

Rent, - - - -	100 liv.
Taxes, - - - -	14
Suppoſe 1½ ox fattened, bought at 240 liv.	360
	474
Intereſt of that total, - -	23
	497
Say, - - -	500
Ox and an half fat, at 375 liv. -	562
Expences, - - - -	500
Profit, - - - -	62

Which is about 1l. 6s. 6d. per Engliſh acre profit; and will pay a man well, the intereſt of his capital being already paid. As theſe Norman graziers are generally rich, I do not apprehend the annual benefit is leſs. In pieces that are tolerably large, a ſtock proportioned to the ſize is turned in, and not changed till they are taken out fat. Theſe Poitou oxen are for the richeſt paſtures; for land of an inferior quality, they buy beaſts from Anjou, Maine, and Bretange. The ſheep fed in the winter do not belong to the graziers, but are joiſted; there is none with longer wool than five inches, but the paſture is equal to the fineſt of Lincoln. In walking over one of theſe noble herbages, my conductor made me obſerve the quantity of clover in it, as a proof of its richneſs; it was the white Dutch and the common red: it is often thus—the value of a paſture depends more on the *diadelphia* than on the *triandria* family.

To Liſieux.—This rich vale of the Pay d'Auge, ſome years ago, was fed almoſt entirely with cows, but now it is very generally under oxen, which are found to pay better. Whatever cows there are, are milked three times a day in ſummer.

To Caen.—The valley of Corbon is a part of the Pay d'Auge, and ſaid to be the richeſt of the whole. In this part, one acre, of 160 perches of 24 feet, or about (not exactly) 2¼ acres Engliſh, fattens two oxen. Such rents are known as 200 liv. (3l. 17s. per Engliſh acre) but they are extraordinary: the proportions

here are rather greater, and more profitable than in the former minute. They buy ſome beaſts before Chriſtmas, which they keep on the paſturage alone, except in deep ſnows; theſe are forwarder in ſpring than ſuch as are bought then, and fatten quicker; they have alſo a few ſheep. There are graziers here that are landlords of 10,000 liv. and even 20,000 liv. a year, yet 100 acres are a large farm.

Bayeux.—The rich herbages about this place are employed in fattening oxen, of the Poitou breed, as before; bought lean, on an average, at 200 liv. and ſold fat at 350 liv. Their cows are always milked thrice a day in ſummer; the beſt give 12 pots a day, or above 4 gallons, and ſell at 7 or 8 louis each.

Iſigny to Carentan.—Much ſalt marſh, and very rich; they fat oxen; but I was ſurpriſed to find many dairy cows alſo on theſe very rich lands. A cow, they ſay, ſometimes pays 10 louis in a year; giving 8 lb. of butter a week, at 20*ſ.* to 30*ſ.* a pound at ſome ſeaſons, but now (Auguſt 25) only 10*ſ.* which, they ſay, is ruinouſly cheap. All are milked thrice a day. Others informed me that a cow gives 10. lb. a week, at the average price of 15*ſ.* Theſe cows reſemble the Suffolk breed, in ſize and brindle colour, round carcaſe, and ſhort leg; and would not be known from them but by the horns, which are of the ſhort Alderney ſort. The profit on fattening a cow here they reckon at 72 liv. and an ox of the largeſt ſize 300 liv. They have alſo a common calculation, that dairy cows feed at the expence of 8*ſ.* a day, and yield 20*ſ.* leaving 12*ſ.* profit. It is remarkable, and cannot be too much condemned, that there are no dairies in this country: the milk is ſet, and the butter made, in any common room of a houſe or cottage.

Carentan.—Many oxen are bought at Michaelmas, and kept a year. They eat each in the winter 300 bottes of hay, or 50 liv. but leave 150 liv. profit, that is, they riſe from 300 liv. to 450 liv. Cows pay, on an average, 100 liv. and are kept each on a vergé of graſs, the rent of which is from 30 liv. to 40 liv. As the vergé is 40 perches, of 24 feet, or 23,040 feet, it is equal to 96 Engliſh ſquare perches, which ſpace pays 100 liv. or per Engliſh acre 7l. 5s. 3d.; but all expences are to be deducted, including what the wintering coſts. Here they have milk-rooms. They work oxen all the way from Bayeux, in yokes and bows, like the old Engliſh ones, only ſingle inſtead of double.

Advancing; cows ſell ſo high as 10 and 12 louis. Many are milked only twice a day; good ones give 1¼ or 1½ lb. of butter a day. They remark, that cows that give the largeſt quantity of milk do not yield the largeſt quantity of butter. Fat cows give much richer milk than others.

Again; a good cow gives 6 pots of milk a day, which pays in butter 24*ſ.* Three thouſand livres profit has been made by fatting thirty cows. A great number of young cattle all over the country, eſpecially year olds.

BRETAGNE.—*Rennes.*—Good oxen of Poitou, 400 liv. to 600 liv. the pair; they are harneſſed by the horns. A good cow, 100 liv. Milk but twice a day.

Landervifier.—I was at the fair here, at which were many cows; in general of the Norman breed, but ſmall: one of the ſize of a middling Alderney, 4 louis, but ſaid to be dear at preſent. Colour, black and white, and red and white.

Quimper.—Many black and white ſmall, but well made, cows on the waſtes here; a breed ſomewhat diſtinct from the Norman; different horns, &c.

Nantes.—Many Poitou oxen; cream coloured; black eyes, tips of horns, and end of tail; about 50 or 60 ſtone fat; all yoked by the horns.

Nonant.—Much rich herbage; an acre of which feeds two oxen, to the improvement of 160 liv. Many cows are fattened alſo; and ſome milked always three times a day in ſummer.

To Gacé.—Some very fine cream coloured oxen, of 60 ſtone or more; but, in general, red and white, not Poitou.

ISLE OF FRANCE.—*Nangis.*—Cows ſell at 4 louis or 5 louis; oxen, half fat, from 8 louis to 11 louis. They come from Franche Compté.

CHAMPAGNE.—*Marcuil.*—Monſ. Le Blanc's Swiſs cows give 18 pints, of Paris (the Paris pint is an Engliſh quart) of milk per diem, and hold their milk remarkably long. He gave 40 louis for a bull and a cow.

LORAINE.—*Braban.*—A ſmall cow, 75 liv.

ALSACE.—*Straſbourg.*—A cow, 6 louis; an ox the ſame.

Iſſenheim.—Cows improve as you approach Franche Compté.

Befort.—Good oxen, red and cream coloured, to 25 louis a pair.

Iſle.—Here much ſmaller; and they ſay the fine ones I have ſeen are from the mountains on the frontiers of Swifferland.

BOURGOGNE.—*Dijon to Nuys.*—Small oxen in this country, and yoked by the horns.

Autun to La Maiſon de Bourgogne.—Good oxen drawing by the horns.

AUVERGNE.—*Clermont.*—Salt given twice a day to cows that give milk. In the mountains the price of cows, 150 liv. to 200 liv.; a few, 300 liv.: an ox, from 200 liv. to 450 liv.

Izoir.—A pair of good oxen, 16 louis to 18 louis, which will draw 2000lb. The Poitevins will buy only red cattle in Auvergne, having remarked that they fatten eaſier.*

VIVARAIS.—*Coſterons.*—A ſmall cow, 4 louis.

PROVENCE.—The cities of Aix, Marſeilles, and Toulon, are fed by oxen, cows, and ſheep, from Auvergne, which come every week; and a few from Piedmont.

* *See alſo Voyage D'Auvergne, par Monſ. Le Grand D'Auſſy.* 8vo. 1788. P. 273.

Tour d'Aigues.—A pair of good oxen, 18 louis or 20 louis. When they have done working, they are fattened with the flour of the *lathyrus ſativus*, &c. made into paſte, and balls given freſh every night and morning; each ox, two or three balls, as large as a man's fiſt, with hay.

Obſervations.

FROM the preceding notes it appears, that in Normandy, the Bas Poitou, Limouſin, Quercy, and Guienne, the importance of cattle is pretty well underſtood; in ſome diſtricts very well; and that in the paſturage part of Normandy, the quantity is well proportioned to the richneſs of the country. In all the reſt of the kingdom, which forms much the greater part of it, there is nothing that attracts notice. There would, in eighteen-twentieths of it, be ſcarcely any cattle at all, were it not for the practice of ploughing with them. There are ſome practices noted, which merit the attention even of Engliſh farmers.—1. The Limoſin and Quercy methods of fattening, by means of acid food.——It is remarkable, that I have found hogs to fatten much better with their food become acid, than when uſed freſh.* But in England no experiments, to my knowledge, have been made, on applying the ſame principle to oxen; it is, however, done in the Limouſin with great ſucceſs. The ſubject is very curious, but the brevity neceſſary to a traveller will not allow my purſuing it at preſent.——2. The practice in Flanders, and, in ſome degree, in Quercy, &c. of keeping cows, oxen, and all ſorts of cattle, confined in ſtables the whole year through.—This I take to be one of the moſt correct and probably one of the moſt profitable methods that can be purſued; ſince, by means of it, there is a conſtant accumulation of dung throughout the year, and the food is made to go much farther.——3. Milking well fed cows thrice a day, as in Normandy.—Experiments ſhould be made on the advantages of this practice, which will probably be found not inconſiderable; it is never done, either in England nor in Lombardy.

Except in the provinces I have named, the management of cattle in France is a blank. On an average of the kingdom, there is not, perhaps, a tenth of what there ought to be: and of this any one muſt be convinced, who reflects, that the courſes of crops throughout the kingdom are calculated for corn only; generally bread corn; and that no attention whatever is paid to the equally important object of ſupporting great herds of cattle, for raiſing manure, by introducing the culture of plants that make cattle the preparative for corn, inſtead of thoſe barren fallows which are a diſgrace to the kingdom. This ſyſtem of interweaving the crops which ſupport the cattle, among thoſe of corn, is the

* *Annals of Agriculture*, vol. j. p. 340.

pillar

pillar of Engliſh huſbandry; without which our agriculture would be as miſerable and as unproductive as that of France. The importance of graſs in ſuch views, is little underſtood in France; but in proportion as corn is the ultimate object, ſhould be the attention that is paid to graſs. England, by the immenſe extent of her paſtures, has a prodigious preparation always ready for corn, if it was demanded. He who has graſs can, at any time, have corn; but he who has corn, cannot at any time have graſs, which demands one or two years accurate preparation. In proportion to your graſs, is the quantity and maſs of your improvements; for few ſoils, not laid to graſs, are at their laſt ſtage of improvement. The contrary of all this takes place in France; and there is little appearance, from the complexion of thoſe ideas which are at preſent faſhionable there, that the kingdom will be materially improved in this respect: the prejudices in favour of ſmall farms, and a minute diviſion of property, and the attention paid to the pernicious rights of commonage, are mortal to ſuch an improvement; which never can be effected but by means of large farms, and an unlimitted power of encloſure.

Horſes.

THIS is an animal about which I have never been ſolicitous, nor ever paid much attention; I was very early and practically convinced of the ſuperiority of oxen for moſt of the works of huſbandry; I may, indeed, ſay for all, except quick harrowing: and if oxen trot ſix miles an hour with coaches, in Bengal, which is the fact, they are certainly applicable to the harrow, with proper training. To introduce the uſe of oxen in any country, is ſo important an agricultural and political object, that the horſe would be conſidered merely as adminiſtering to luxury and war. The very few minutes I took, I ſhall inſert in the order they occurred.

LIMOUSIN.—This province is reckoned to breed the beſt light horſes that are in the kingdom; and ſome capital regiments of light horſe are always mounted from hence; they are noted for their motion and hardineſs. Some miles to the right of St. George, is Pompadour, a royal demeſne, where the King has a *haras* (ſtud): there are all kinds of horſes, but chiefly Arabian, Turkiſh, and Engliſh. Three years ago four Arabians were imported, which had been procured at the expence of 72,000 liv. (3149l.); and, owing to theſe exertions, the breed of this province, which was almoſt ſpoiled, has been much recovered. For covering a mare, no more is paid than 3 liv. which is for the groom, and a feed of oats for the horſe. They are free to ſell their colts to whom they pleaſe; but if they come up to the King's ſtandard of height, his officers have the preference, on paying the ſame price offered by others; which, however,

however, the owner may refuſe, if he pleaſes. Theſe horſes are never ſaddled till ſix years old, and never eat corn till they are five; the reaſon given is, that they may not hurt their eyes. They paſture all day, but not at night, on account of the wolves, which abound ſo in this country as to be a nuiſance. Prices are very high; a horſe of ſix years old, a little more than 4 feet 6 inches high, ſells for 70 louis; and 15 louis have been offered for a colt at one year old. The paſtures are good, and proper for breeding horſes.

Cahors.—Bean-ſtraw they reckon excellent for horſes, but not that of peaſe, which is too heating.

Agen.—Meet women going to this market, loaded with couch roots to ſell for feeding horſes. The ſame practice obtains at Naples.

SAINTONGE.—*Monlieu.*—Never give chaff to their horſes, as they think it very bad for them.

ISLE OF FRANCE.—*Dugny.*—Monſ. Cretté de Palleuel has found cut chaff one of the moſt œeonomical foods that can be given to horſes; and his machine for cutting it is by far the moſt powerful one that I have any where ſeen. It is a mill turned by a horſe; the cutting inſtruments are two ſmall cylinders, that revolve againſt each other, circular cutting hoops being on their ſurface, that lock into each other; thoſe of one, plain, but of the other, toothed: juſt above them is a large trough or tray, to hold a truſs of ſtraw, which weighs 12 lb. and the machine cuts it into chaff in three minutes, without putting the horſe out of his pace; and in two minutes, by driving him quicker; a man attends to ſpread the ſtraw equally in the tray, as it is ſucked in by the revolving cylinders; a boy driving the horſe. One of the machines common in England, for dreſſing corn, is at the ſame time turned: the whole is in a building of eight yards ſquare.

NORMANDIE.—*Iſigny.*—The rich herbages here are fed, not only with bullocks and cows, but alſo with mares and foals.

Carentan.—Colts, bred here, ſell for very high prices, even to 100 louis, at three years old; but in general good ones from 25 to 30 louis.

BRETAGNE.—*Rennes.*—Good horſes ſell at 150 liv. The author of the *Conſiderations ſur le Commerce de Bretagne*, ſays, p. 87. that he has ſeen many markets in the biſhopricks of Rennes and Nantes, where the beſt horſe was not worth 60 liv.

Morlaix.—See in this vicinity, for ſeveral miles, ſome fine bay mares with foals.

Auvergnac.—Informed that Bretagne exports 24,000 horſes, from 12 to 25 louis each; and the country that chiefly produces them, is from Lamballe to the ſea beyond Breſt.

ALSACE.—*Straſbourg.*—A good farm horſe, 12 louis.

To Scheleſtadt.—Clover mown for ſoiling all the way.

The

The Norman horſes for draught, and the Limouſin for the ſaddle, are eſteemed the beſt in the kingdom. Great imports have been made of Engliſh horſes for the coach and ſaddle. It is no object to leſſen that import, for their own lands can be applied to much more profitable uſes than breeding of horſes. The *æconomiſtes* were great enemies to the uſe of oxen, and warm advocates for that of horſes becoming general; one of the many groſs errors which that fanciful ſect were guilty of.

Hogs.

GASCOIGN.—*St. Palais to Anſpan.*—See many fine white, and black and white hogs; they are fed much on acorns, but are fattened throughout this country on maiz ground to flour, and boiled with water to a paſte, and given freſh, milk-warm, every day. Some on beans. They are turned a year old when put up to fatten; riſe to the weight of two or three quintals. Theſe are the hogs that furniſh Bayonne with the hams and bacon, which are ſo famous all over Europe. The hams ſell at 20*ſ.* the pound.

I have reſerved this minute, from ſome others of little conſequence, for the opportunity of remarking, that, in England, the old cuſtom of feeding hogs with warm food, is totally diſcontinued; but it well deſerves experiment, whether it would not anſwer in fattening, and alſo in the nouriſhment of ſows and pigs. Such experiments are difficult to make ſatisfactorily, but yet they ought to be made by ſome perſons that are able. Warm food in winter, regularly given, I ſhould ſuppoſe, muſt be more fattening than that which is cold, and, in bad weather, half frozen.

CHAP.

CHAP. XIII.

Of the Culture of various Plants in France.

IN the courſe of my inquiries into the French agriculture, I made ſome minutes on various articles, that do not merit a ſeparate chapter aſſigned to each; I ſhall therefore introduce them to the reader alphabetically. It may be of uſe to future travellers to know what articles are cultivated in that kingdom, that they may give to each ſuch an attention as may ſuit their purpoſe.

Almonds.

PROVENCE—*Aix.*—More ſubject to accidents than olives: ſometimes three, four, and five bad crops to one good. Olives flower in June, but almonds in February, and conſequently ſubject to froſts. The produce of a good tree is commonly 3 liv.

Tour d'Aigues.—Do not yield a good crop oftener than once in ten years. Price, 36 to 40 liv. the quintal: four and a half quintals in the ſhell yield one clean: the price has been 70 liv. Price of the piſtachio almond, 6 liv. the 15lb. in the ſhell. Some few fine almond trees will give a quintal in the ſhell. They are a moſt hazardous culture, by reaſon of the fog that makes them drop; the worm that eats; and the froſt that nips.

Beans.

SOISSONOIS.—*Coucy.*—In the rich lands cultivated, in the courſe of, 1, beans; 2, wheat, remark now (October 31) ſome beautiful curled and luxuriant pieces of wheat, which, from the beans among it, appear to have been ſown after this crop.

ARTOIS.—*Lillers to Bethune.*—Many beans through all Artois, in drills at 12 or 14 inches, very fine and very clean; the culture is as common and as good as in Kent, and they have a much richer ſoil. Wheat is ſown after muſtard, flax, and beans; and is better after beans than after either of the other two crops.

ALSACE.—*Wiltenheim to Straſbourg.*—Many pieces; good and very clean. Produce, ſix ſacks (of 180 lb. of wheat) per arpent of 24,000 feet (28 buſhels per Engliſh acre).

Scheleſtadt.—Produce, ſix to eight ſacks, at 7 to 12 liv. (7 at 9 liv. is 4l. 7s. per Engliſh acre).

The

The culture of beans is by no means ſo common in France as it ought to be; they are a very neceſſary aſſiſtance on deep rich ſoils in the great work of baniſhing fallows; they prepare on ſuch ſoils better than any other crop for wheat, and are of capital uſe in ſupporting and fattening cattle and hogs.

Broom.

BRETAGNE.—*Rennes.*—The land left to it in the common courſe of crops. It is cut for faggots; ſold to the bakers, &c.

Morlaix.—Cultivated through all this country, in a very extraordinary ſyſtem; it is introduced in a regular courſe of crops, and left three or four years on the land; at which growth cut for faggots, and forms the principal fuel of the country. It is a vaſt growth, much ſuperior to any thing I ever ſaw; ſix or ſeven feet high, and very ſtout; on regular lands, with intervals of two or three feet. Price ſometimes of a cord of wood, 30 liv. Does this apologize for ſuch a ſyſtem?

Breſt.—The broom ſeed is ſown among oats, as clover is in other places, and left four years, during all which time it is fed. The faggots of a good journal will ſell for 400 liv. (14l. per Engliſh acre). The faggots weigh 15lb. and ſell fifty for 9 liv. to 12 liv. being a three-horſe load. It is only within the reach of Breſt market that it is worth 400 liv.—elſewhere only 300 liv. the beſt. Four years broom improves land ſo much, that they can take three crops of corn after it.

BOURGOGNE.—*Luzy.*—When I left Bretagne, I never expected again to find broom an article of culture; but the rye-lands of all this country, and there is nothing but rye in it, are left, when exhauſted by corn, to cover themſelves with broom, during five years; and they conſider it as the principal ſupport of their cattle.

To Bourbonlancy and BOURBONNOIS.—*Moulins.*—Much broom through all this diſtrict of rye-land.

Carrots and Parſnips.

FLANDERS.—*Cambray.*—See ſome fine carrots taken up, which, on inquiry, I find are for cows. They ſow 4 lb. of ſeed per arpent; hoe them thrice: I gueſſed the crop about four buſhels per ſquare rod. An arpent ſells, for cattle, at 180 liv. the purchaſer taking up (5l. 5s. per Engliſh acre). After them they dung lightly, and ſow wheat.

Orchies to Lille.—The culture here is ſingular; they ſow the ſeed at the ſame time, and on the ſame land, as flax, about Eaſter; that crop is pulled in July, the carrots then grow well, and the produce more profitable than any other

application of the flax ſtubble. They yield, I gueſs, from 60 to 80 buſhels, and ſome more, per Engliſh acre; but what I ſaw were much too thick.

Argentan to Bailleul.—Carrots taken up, and guarded, by building in the neateſt and moſt effectual way, againſt the froſt; they are topped, laid in round heaps, and packed cloſe, with their heads outwards; and being covered with ſtraw, in the form of a pyramid, a trench is digged around, and the earth piled neatly over the ſtraw, to keep out the froſt. In this manner they are found perfectly ſecure.

ARTOIS.—*Aſſ to Aras.*—A ſprinkling of carrots, but none good.

BRETAGNE.—*Ponton to Morlaix.*—Many parſnips cultivated about a league to the left; they are ſown alone and hoed. They are given to horſes, and are reckoned ſo valuable, that a journal is worth more than one of wheat. Nearer to Morlaix, the road paſſes a few ſmall pieces. They are on beds, 5 or 6 yards broad, with trenches digged between, and on the edges of thoſe trenches a row of cabbages.

Morlaix.—About this place, and in general through the biſhoprick of St. Pol de Leon, the culture of parſnips is of very great conſequence to the people. Almoſt half the country ſubſiſts on them in winter, boiled in ſoup, &c. and their horſes are generally fed with them. A horſe load, of about 300 lb. ſells commonly at 3 liv.; in ſcarce years, at 4 liv.; and ſuch a load is good food for a horſe fifteen days. At 60 lb. to the buſhel, this is 5 buſhels, and 2s. 7½d. for that, is 6½d. per buſhel of that weight. I made many inquiries how many loads on a journal, but no ſuch thing as information tolerably to be depended on; I muſt therefore gueſs the preſent crop, by the examination I made of many, to amount to about 300 buſhels, or 350 per Engliſh acre. The common aſſertion, therefore, that a journal of parſnips is worth two of wheat, ſeems to be well founded. The ground is all digged a full ſpit deep for them; they are kept clean by hand-weeding very accurately, but are left, for want of hoeing, beyond all compariſon, too thick. They are reckoned the beſt of all foods for a horſe, and much exceeding oats; bullocks fatten quicker and better on them than on any other food; in ſhort, they are, for all ſorts of ſtock, the moſt valuable produce found on a farm. The ſoil is a rich deep friable ſandy loam.

Landernau to Breſt.—The culture of parſnips here declines much, but I ſaw a few pieces; one was weeding by five men, crawling on their knees. Fatten many horſes, by feeding them with cabbages and parſnips boiled together, and mixed with buckwheat-flour, and given warm. They have a great pride here in having fat horſes. Many other diſtricts in France, beſides Bretagne, poſſeſs the right ſoil for parſnips; and many more, beſides Flanders, that for carrots; but they are no where elſe articles of common culture. Parſnips are not cultivated in England; but carrots are in Suffolk, with great ſucceſs, and all the horſes

horſes in the maritime corner of that county fed with them. I have, in the *Annals of Agriculture*, given many details of their culture and uſes. Carrots ſucceed well on all dry ſoils that are ſix inches deep; but, for large crops, the land ſhould be a foot deep, rich and dry. The extent of ſuch in France is very great, but this general profitable uſe not made of them.

Cabbages.

FLANDERS.—*Orchies to Lille.*—The kale, called here *choux de Vache*, is common through this country; it never cabbages, but yields a large produce of looſe reddiſh leaves, which the farmers give to their cows. The ſeed is ſown in April, and they are tranſplanted in June or July, on to well-dunged land, in rows, generally two feet by one foot: I ſaw ſome fields of them, in which they were planted at greater diſtances. They are kept clean, by hoeing. They are reckoned excellent food for cows; and the butter made from them is good, but not equal to that from carrots.

NORMANDIE.—*Granville to Avranches.*—In the gardens of the cottages, many cabbage trees five and ſix feet high.

BRETAGNE.—*St. Brieux.*—Many ſown here on good land, on wheat ſtubbles, for ſelling plants to all the gardens of the country, and to a diſtance. I do not ſee more than to the amount of a journal in one piece; which, in September, I muſt have done, had they poſſeſſed any cabbage culture, as repreſented to me, worth attention. They firſt clean, and then plough the wheat ſtubbles, and chop and break the ſurface of the three-feet ridges fine, and then ſow. The plants are now (September 7) about an inch high, and ſome only coming up.

Morlaix.—They have ſome crops that are much more productive than their turnips, but planted greatly too thick: they are given to cows and oxen.

ANJOU—*Migniame.*—The *chou d'Anjou*, of which the Marquis de Turbilly ſpeaks, is not to be found at preſent in this country; they prefer the *chou de Poitou*, which is a ſort of kale, and produces larger crops of leaves than the *chou d'Anjou*. Monſ. Livonniere gave me ſome ſeeds, but, by miſtake, they proved a bad ſort of *rave*, and not comparable to our turnips, as I found, by ſowing them at Bradfield.

ALSACE.—*Saverne to Wiltenheim.*—Many cabbages, but full of weeds.

Straſbourg.—Crops to a great weight, but only for ſour-crout.

Scheleſtat.—The quantity increaſes between Benfeldt and Scheleſtat. Their culture is, to ſow the ſeed on a bed in March, covered with mats, like tobacco, and tranſplant in June, 2000 to 3000 plants on an arpent; they make a hole with a ſpade, which they fill with water, and then plant: they never horſe-hoe, yet the diſtance would admit it well. They are in ſize 10 lb. or 12 lb. and ſome

20 lb.; the hearts are for ſour-crout, but the leaves for cows. An arpent is worth 303 liv. (20l. 15s. 10d. per Engliſh acre); but carriage to a town is to be deducted.

The culture of cabbages, for cattle, is one of the moſt important objects in Engliſh agriculture; without which, large ſtocks of cattle or ſheep are not to be kept on ſoils improper for turnips. They are, in every reſpect but one, preferable to that root; the only inferiority is, that of cabbages demanding dung on all ſoils, whereas good land will yield turnips without manuring. Great attention ought to be paid to the full introduction of these two crops, without which we may venture to predict, that the agriculture of France will continue poor and unproductive, for want of its due ſtock of cattle and ſheep.

Clover.

ISLE OF FRANCE.—*Liancourt.*—Never cultivate it for its place in a rotation, but merely for forage, like lucerne; have a barbarous cuſtom of ſowing it without tillage on wheat ſtubbles, and it laſts ſo ſometimes two years.

ARTOIS.—*Recouſſe.*—Monſ. Drinkbierre, a very intelligent farmer here, aſſured me, that clover exhauſted and ſpoiled the land, and that wheat after it was never ſo good as after a fallow; but as the clover is ſown with a ſecond, and even a third corn crop, no wonder therefore that it fouls land.

I could add many other notes on this subject, but will be content to mention, in general, that the introduction of clover, wherever I have met with it, has been commonly effected in ſuch a manner that very little benefit is to be expected from it. All good farmers in England know, from long experience, that the common red clover is no friend to clean farming, if ſown with a ſecond or third crop of corn. In the courſe, 1, turnips or cabbages; 2, barley or oats; 3, clover; 4, wheat: the land is kept in garden order. But if after that fourth crop, the farmer goes on and ſows, 5, barley or oats; 6, clover; 7, wheat, the land will be both foul and exhauſted. In a word, clover is beneficial to the really good and clean farmer only to the extent of his turnips, cabbages, and fallow; and never ought to be ſown but on land previouſly cleaned by thoſe hoeing crops, or by fallow. As to fallow, no Frenchman ever makes it but for wheat, conſequently the culture of clover is excluded. I have often ſeen it ſown in this courſe; 1, fallow; 2, wheat; 3, barley; 4, oats; 5, clover; 6, clover; 7, wheat; 8, oats; and the land inevitably full of weeds. I may venture to aſſert, that clover thus introduced, or even in courſes leſs reprehenſible, but not correct, will do more miſchief than good, and that a country is better cultivated without than with it. Hence, therefore, let the men, emulous of the character of good farmers, conſider it as eſſential to good huſbandry to have no more

clover

clover than they have turnips and cabbages, or ſome other crop that anſwers the ſame end; and never to ſow it but with the firſt crop of corn; by theſe means their land will be clean, and they will reap the benefits of the culture without the common evils.

I have read in ſome authors, an account of great German farmers having ſuch immenſe quantities of clover, as are ſufficient to prove the utter impoſſibility of a due preparation: theſe quantities are made a matter of boaſt. We know, however, in England, in what manner to appreciate ſuch extents of clover.

Cheſnuts.

BERRY.—*La Marche.*—Firſt meet with them on entering La Marche.

Boiſmandè.—They are ſpread over all the country; the fruit are ſold, according to the year, from 5*ſ.* to 10*ſ.* and 15*ſ.* the boiſeau, which meaſure will feed a man three days: they rub off the ſkin; boil them in water with ſome ſalt; ſqueeze them into a kind of paſte, which they dry by the fire; they commend this food as pleaſant and wholeſome. The ſmall ones are given to pigs, but will not fatten them ſo well as acorns, the bacon being ſoft; when fattened with acorns, they are finiſhed with a little corn. A cheſnut tree gives two boiſeau each of fruit on an average; a good one, five or ſix. The timber is excellent for building; I meaſured the area ſpread by many of them, and found it 25 feet every way. Each tree, therefore, occupies 625 feet, and an acre fully planted would contain 70; at two boiſeau each it is 140, which, at 10*ſ.* is 2l. 18s. 4d. and as one of theſe meaſures will feed a man three days, an acre would ſupport a man four hundred and twenty days, or fourteen months. It muſt, however, be obvious, that land cannot be ſo exactly filled, and that an acre of land would not probably, in common, do for half that number.

La Villeaubrun.—They eat many cheſnuts, but do not live upon them, eating ſome bread alſo; in which mode of conſuming a boiſeau, it will laſt a man five or ſix days. Price as above.

LIMOUSIN.—*Limoges.*—Price 7*ſ.* to 15*ſ.* the boiſeau. This food, though general in the country, would not be ſufficient alone; the poor eat therefore ſome rye bread. The comfort of them to families is very great, for there is no limit in the conſumption, as of every thing elſe: the children eat them all day long; and in ſeaſons when there are no cheſnuts there is often great diſtreſs among the poor—The exact tranſcript of potatoes in Ireland. The method of cooking cheſnuts here, is to take off the outward ſkin, and to put a large quantity into a boiler, with a handful of ſalt, and very little water, to yield ſteam; they cover it as cloſely as poſſible, to keep in the ſteam: if much water is added, they

loſe

loſe their flavour and nouriſhing quality. An arpent under cheſnuts does not yield a product equal to a good arpent of corn, but more than a bad one.

To Magnac.—They are ſpread over all the arable fields.

QUERCY.—*Brive to Noailles.*—Ditto; but after Noailles there are no more.

Payrac.—Boil them for their food, as above deſcribed.

LANGUEDOC.—*Gange.*—Many in the mountains; and exceedingly fine cheſnut underwood.

POITOU.—*Ruffec.*—Yields a good crop, to the amount even of 10 liv. for a good tree's produce. The poor people live on them. A meaſure of 45lb. has been ſold this year at 48*ſ.*

BRETAGNE.—*Pont Orſon.*—On entering this province, theſe trees immediately occur, for there are none on the Normandy ſide of the river, that parts the two provinces.

MAINE.—*La Fleche to Le Mans.*—Many cheſnuts, the produce chiefly ſold to towns; the poor people here not living on them with any regularity: three buſhels (each holding 30 lb of wheat) are a good crop for one tree, and ſell at 40*ſ.* the buſhel; this is more than a mean produce, but not an extraordinary one. The number here is very great; and trees, but of a few years growth, are well loaded.

VIVARAIS.—*Pradelles to Thuytz.*—Immenſe quantities of theſe trees on the mountains; it is the greateſt cheſnut region I have ſeen in France. The poor people live on them boiled; and they ſell, by meaſure, at the price of rye.

The huſbandry of ſpreading cheſnuts over arable lands muſt unqueſtionably be very bad; the corn muſt ſuffer greatly, and the plough be much impeded. It is as eaſy to have theſe trees upon graſs land, where they would be comparatively harmleſs: but the fact is here, as is ſo general in France, that they have no paſtures which the plough does not occupy by turns; all, except rich meadows, being arable. The fruit is ſo great a reſource for the poor, that planting theſe trees upon lands not capable of tillage by the plough, is a very conſiderable improvement: the mountains of the Vivarais thus are made productive in the beſt method perhaps that they admit.

Chicory.

ISLE OF FRANCE.—*Dugny.*—Monſ. Cretté de Paleuel, 1787, had this plant recommended to him by the Royal Society of Paris; in conſequence of which, he has made ſeveral very ſucceſsful experiments on it. He has had it two years under cultivation. The ſeed is ſown in March, 12 lb. per arpent (100 perches at 18 feet) on one ploughing, and is harrowed in. It riſes ſo thick, as to cover the whole ground, and is mown the ſame year once; Monſ. Cretté has cut one piece

piece twice the firſt year. The following winter he dunged it, at the rate of eight loads, of three horſes, per arpent. The year after, ſome was cut three times, and ſome four; and Monſ. Cretté remarks, that the oftener the better, becauſe more herbaceous and the ſtalks not ſo hard. He weighed the crop upon one piece, and found the weight, green,

	lb.
Of the firſt cutting, - - -	55,000
ſecond, - - - -	18,000
third, - - - -	3,000
Per arpent, - -	76,000

By making ſome of it into hay, he found that it loſt three-fourths of its weight in drying, conſequently the arpent gave 19,000 lb. of hay, or 10 tons per Engliſh acre. It is ſo ſucculent and herbaceous a plant, as to dry with difficulty, if the weather be not very fine; but the hay, he thinks, is equal to that of clover, though inferior to meadow hay. He has uſed much in ſoiling, and with great ſucceſs, for horſes, cows, young cattle, and calves; finds it to be eaten greedily by all, and to give very good cream and butter. Monſ. Cretté's fine dairy of cows being in their ſtalls, he ordered them to be fed with it in my preſence; and they ate all that was given, with great avidity. When in hay, it is moſt preferred by ſheep; cows do not, in that ſtate, eat the ſtalks ſo well as ſheep. A circumſtance which he conſiders as valuable, is its not being hurt by drought ſo much as moſt other plants; and he informs me, but not on his own experience, that it will laſt good ten years.

I viewed one of his crops, of ſeven or eight arpents, ſown laſt ſpring, and which has been mown once; I found it truly beautiful. He ſowed common clover and ſainfoin among it, and altogether it afforded a very fine fleece of herbage, about eight or nine inches high (October 28) which he intends feeding this autumn with his ſheep. He is of opinion that the ſainfoin will be quite ſuffocated, and that the chicory will get the better of the clover.

PROVENCE.—*Vaucluſe to Orgon.*—In a very fine watered meadow, one-third of the herbage is this plant.

I liked the appearance of this plant ſo well in France, and was ſo perfectly ſatisfied with what I ſaw of it, cultivated by Monſ. Cretté de Paleuel, and growing ſpontaneouſly in the meadows, that I brought ſeed of it to England; and have cultivated it largely at Bradfield, with ſuch ſucceſs, that I think it one of the beſt preſents France ever made to this kingdom. I ſow it with corn like clover; but it pays well for occupying the land entirely. It will prove, without doubt, a very valuable plant for laying land permanently to graſs; and alſo for introducing, in courſes of crops, when the land wants reſt for three, four, or five

five years. I am much miſtaken if we do not in a few years make a much greater progreſs in the culture of this plant than the French themſelves, from whom we borrowed it, will do.

Sheep are ſaid to be very fond of it*, a fact I have ſufficiently proved in Suffolk. From a paſſage in an Italian author, who ſpeaks of ſowing the wild chicory, I am in doubt whether the French have the honour of being really the firſt introducers of this plant†.

Coleſeed.

FLANDERS.—*Cambray.*—Near this town, I met firſt with the culture of coleſeed: they call it *gozá.* Sow the ſeed thick on a ſeed-bed, for tranſplanting; ſetting it out on an oat ſtubble, after one ploughing. This is ſo great and ſtriking an improvement of our culture of the ſame plant, that it merits the utmoſt attention; for ſaving a whole year is an object of the firſt conſequence. The tranſplanting is not performed till October, and laſts all November, if no froſt; and at ſuch a ſeaſon there is no danger of the plants not ſucceeding: earlier would however ſurely be better, to enable them to be ſtronger rooted, to withſtand the ſpring froſts, which often deſtroy them; but the object is not to give their attention to this buſineſs till every thing that concerns wheat ſowing is over. The plants are large, and two feet long; a man makes the holes with a large dibble, like the potatoe one uſed on the Eſſex ſide of London, and men and women fix the plants, at 18 inches by 10 inches; ſome at a foot ſquare, for which they are paid 9 liv. per manco of land. The culture is ſo common all the way to Valenciennes, that there are pieces of two, three, and four acres of ſeed-bed, now cleared, or clearing, for planting. The crop is reckoned very uncertain; ſometimes it pays nothing, but in a good year up to 300 liv. the arpent (100 perches of 24 feet) or 8l. 15s. the Engliſh acre. They make the crop in July, and, by manuring the land, get good wheat.

Valenciennes to Orchies.—This is a more valuable crop than wheat, if it ſucceeds; but it is very uncertain. All tranſplanted.

Lille.—The number of mills, near Lille, for beating coleſeed, is ſurpriſing, and proves the immenſe quantity of this plant that is cultivated in the neighbourhood. I counted ſixty at no great diſtance from each other.

Bailleul.—The quantity cultivated through this country immenſe; all tranſplanted; it occurs once in a courſe of ſix or ſeven years. Price of the cakes, 3½*ſ.* each; they are the ſame ſize as ours in England.

* *Phytographie Oeconomique de la Loraine*, Par M. Willemet. 1780. 8vo. P. 57.

† *Ronconi Dizionario D'Agricoltura o ſia La Coltivazione Italiana.* Tom. ii. P. 148.

ARTOIS.

ARTOIS.—*St. Omers.*—Great ſtacks of coleſeed ſtraw all over the country (Auguſt 7th) bound in bundles, and therefore applied to uſe.

I ſhould remark, in general, that I never met with coleſeed cultivated in any part of the kingdom merely for ſheep-feed; yet it is an object, ſo applied, of great conſequence, and would be particularly uſeful in France, where the operoſe cultures of turnips and cabbages will be long eſtabliſhing themſelves. With this view coleſeed ſhould be thus introduced:

1. Winter tares, ſown the begnining of September on a wheat ſtubble; mown for ſoiling: then the land ploughed and coleſeed harrowed in.
2. Barley, or oats.
3. Clover.
4. Wheat.

Fuller's Thiſtle.

ISLE OF FRANCE.—*Liancourt.*—Very profitable: has been known to amount to 300 liv. or 400 liv. the arpent (about 1¼ acre).

Furz.

GASCOIGN—*St. Palais to Anſpan.*—A practice in these mountainous waſtes, which deſerves attention, is their cutting furz when in bloſſom, and chopping them mixed with ſtraw for horſes, &c.; and they find that no food is more hearty or nouriſhing.

NORMANDIE.—*Vologne to Cherbourg.*—Throughout this country a ſcattering of furz ſown as a crop, with wheat or barley, as clover is uſually ſown: the third year they cut it to bruiſe for horſes; and every year afterwards: and it yields thus a produce of 40 liv. the vergé, of 96 Engliſh perch.

BRETAGNE.—*St. Pol Leon.*—Through all this biſhopric the horſes are fed with it bruiſed, and it is well known to be a moſt nouriſhing food.

The practice here minuted is not abſolutely unknown in England; there are many traces of it in Wales, and ſome other parts of the kingdom. I have been aſſured that an acre, well and evenly ſeeded, and mown for horſes every year, has yielded an annual produce, worth, on a moderate eſtimate, 10l. but I never tried it, which was a great neglect, in Hertfordſhire, for I had there land that was proper for it.

Culture of Hemp and Flax.

PICARDIE.—*Montreuil to Picquigny.*—Small patches of flax all the way. At Picquigny, a good deal of land ploughing for hemp, to be ſown in a week (May 22).

QUERCY—The hemp, in much of this province, is ſown every year on the ſame ſpots; and very often highly manured. This appears to be an erroneous ſyſtem, wherever the lands in general are good enough to yield it.

Cauſſade.—Vaſt quantities near this place, now (June 12,) two or three feet high.

LANGUEDOC.—*Monrejeau.*—Flax now (Auguſt 10) graſſing.

Bagnere de Bigore to Lourd.—Never water their flax, only graſs it. I ſaw much with the graſs grown through it; if the land or weather be tolerably wet, three weeks are ſufficient.

GUIENNE.—*Port de Leyrac.*—This noble vale of the Garonne, which is one of the richeſt diſtricts of France, is alſo one of the moſt productive in hemp that is to be found in the kingdom.

Agen.—Hemp yields 10 quintals per carterée, at 40 liv. the quintal, *poid de table* (17l. 10s.), which carterée is ſown with 217 lb. of wheat. This is probably about 1¼ Engliſh acre.

Aguillon.—The hemp is every where watering in the Garonne: they do not leave it in more than three or four days.

Tonneins.—The whole country, from Aguillon to this place, is all under either hemp or wheat, with exception of ſome maiz; and its numerous population ſeems now employed on hemp.

La Morte Landron.—It yields 10 to 12 quintals, at 36 liv. to 45 liv. the quintal.

SOISSONOIS.—*Coucy.*—Hemp cultivated in the rich vales, in the courſe,—1, hemp; 2, wheat. It yields 500 bottes, at 25 liv. the hundred, reckoned on the foot before watering.

St. Amand.—The carterée of land, of 100 verge of 19 feet (36,100 feet), under flax, has this year a very good crop, on account of the rainy weather; it has been ſold at 1200 liv. or very near the fee ſimple of the land (55l. 11s. 3d. per Engliſh acre). This amazing value of flax made me deſirous of knowing if it depended on ſoil, or on management. Sir Richard Weſton, in the laſt century, who has been copied by many ſcores of writers ſince, ſpeaks of poor ſandy land as being the beſt for that flax of which the fine Bruſſels lace is made; conſequently this is made from land abundantly different from what produces the Valenciennes laces, if that aſſertion were ever true. The ſoil at St. Amand is a deep

a deep moiſt friable loamy clay, of vaſt fertility, and ſituated in a diſtrict where the greateſt poſſible uſe is made of manures; it therefore abounds very much with vegetable mould. Flax is ſown on the ſame land, once in twelve to fifteen years; but in Auſtrian Flanders, once in ſeven or eight years. Advancing, and repeating my inquiries, I was aſſured that flax had been raiſed to the amount of 2000 liv. the carterée (92l. 15s. 6d. per Engliſh acre). The land is nearly the ſame as above deſcribed, and lets, when rented, at 36 liv. the carterée (1l. 13s. 3d. per Engliſh acre). They ſow 2 *raziere* of ſeed, each holding 50 lb. of wheat per carterée; and a middling crop of good flax is from 3½ to 4 feet high, and extremely thick. They water it in ditches, ten, twelve, and fourteen days, according to the ſeaſon; the hotter the weather, the ſooner it is in a proper ſtate of putrefaction. After watering, they always graſs it in the common method.

Going on, and gleaning freſh information, I learned that 1200 liv. may be eſteemed a great produce per carterée; the land all round, good and bad, of a whole farm letting at 30 liv. and ſelling at 1200 liv. Nothing can ſhew more attention than their cultivation: beſides weeding it with the greateſt care, while young, they place poles, or forked ſtakes, amongſt it, when at a proper height, in order to prevent its being beaten to the ground by rain, from its own length and weight; without this precaution it would be flat down, even to rotting.

Orchies.—A carterée of flax, of 40,000 feet, riſes to the value of 1500 liv. and even more (63l. 18s. 9d. per Engliſh acre). They ſow ſuch as is intended for fine thread, as ſoon as the froſts are over, which is in March; but ſuch as is for coarſer works, ſo late as May. Never ſeed their own flax, always uſing that of Riga. They prefer for it, an oat-ſtubble that followed clover; and they manure for it in the winter preceding the ſowing. Wheat is, in general, better after flax than after hemp.

Lille.—Flax, in common, is worth 90 liv. the *centier*, or 360 liv. the carterée (15l. 6s. 3d. per Engliſh acre): this is excluding uncommon crops.

ARTOIS.—*Lillers.*—Flax all through the country, and exceedingly fine. Sow wheat after it.

Bethune.—An arpent of good flax worth more than one of wheat; yet *good* wheat is worth 200 liv.

Beauval.—Flax ſometimes worth 500 liv. the journal (25l. 17s. 11d. per Engliſh acre). Hemp does not equal it. They do not water flax here, only ſpread it on graſs or ſtubbles.

NORMANDIE.—*Bolbec to Harfleur.*—Flax not watered, but ſpread on ſtubble.

BRETAGNE.—Throughout this province, they every where cultivate flax, in patches, by every family, for domeſtic employment.

Ancenis.—The culture of flax is generally, throughout the kingdom, as well as in the greateſt part of Europe, that of a ſpring crop; but here it is ſown in autumn. They are now working the wheat-ſtubbles on one ploughing, very fine, with a ſtout bident-hoe, and ſowing them: ſome is up. It is pulled in Auguſt, and wheat ſown after it.

Anjou.—*Migniame.*—They have winter-ſown flax all over the country. The value of the crop exceeds that of wheat. They do not water, only graſs it; yet admit that watering makes it whiter and finer.

Turbilly.—Hemp is ſown in patches every where through the country; ſells at 8*ſ.* the pound, raw; ſpun, at 26*ſ.* and 27*ſ.*; bleached, at 30*ſ.* to 36*ſ.* The crop is 30 to 40 weights, each 15 lb. or 16 lb. per journal, or about 210 liv.

Maine.—*Gueſceland.*—Through all this country there is much hemp ſown every year, on the ſame ſpot; ſpun; and made, by domeſtic fabrics, into cloth, for home uſes. Spinning is 10*ſ.* the pound; and it is an uncommon ſpinner that can do a pound in a day; in common but half a pound.

Loraine.—*Luneville.*—Hemp is cultivated every where in the province, on rich ſpots; hence there is much of it; and ſome villages have been known to make a thouſand crowns in a year of their thread and linen. If it is wiſhed that the hemp be very fine, they do not water, but only ſpread it on the graſs; but, in general, water it. Uſe their own ſeed, and furniſh much to their neighbours; but have that of flax from Flanders. Sow beans among flax, for ſupporting it; others do this with ſmall boughs of trees. Some alſo ſow carrots among their flax; which practice, I ſuppoſe, they borrowed from Flanders. Hemp is always dunged, and always ſown on the ſame ſpots, which ſell at the ſame price as gardens; a common and execrable practice in France. A journal gives, on good land, 95 lb. and 103 lb. of *toup*; price laſt year, ready for ſpinning, 16*ſ.* the lb.; the *toup* 11*ſ.* now higher: alſo 2 *razeau* of ſeed (each 180lb. of wheat). The journal equals 65 Engliſh perches.

Alsace.—*Straſbourg.*—Product 3 quintals, at 27 liv. the quintal, the arpent (5l. 12s. per Engliſh acre).

Scheleſtat.—Produce 2 quintals, ready for ſpinning, at 36 liv. to 48 liv. the quintal (5l. 16s. 3d. per Engliſh acre). Water it for cordage, but not for linen; graſs it only, as whiter.

Auvergne.—*Clermont.*—In the mountains; price of hemp, ready to ſpin, 15*ſ.* to 18*ſ.* the lb.; ſpun, 24*ſ.* fine, 30*ſ.*

Izoir.—Produce of hemp, per cartona, 150lb. rough, at 5*ſ.* the lb. which is 113lb. ready for ſpinning; but bad hemp loſes more. The ſeterée is 8 cartoni, of 150 toiſes, or 43,200 feet. Hemp grounds ſell equally with gardens (11l. 11s. 6d. per Engliſh acre).

Briude.

Briude.—Hemp yields a quintal, raw, per cartona; female is worth 40 liv. the quintal, male, 30 liv.; alſo 8 coups of ſeed, at 6*ſ.* Average produce 35 liv. or 36liv. in all.

DAUPHINE.—*Loriol.*—Chineſe hemp ſuceeeds well with Monſ. Faujas de St. Fond, and perfects its ſeed, which it rarely does in the King's garden, at Paris. He thinks it an error to ſow it, like other hemp, in the ſpring; for he is of opinion, that it would ſeed even in England, if ſown in autumn. He has found, by experiment, that it is excellent for length and ſtrength, if ſown thick enough to prevent its ſpreading laterally, and to make it riſe without branching.

PROVENCE.—*Marſeilles.*—Price of hemp: Riga, firſt quality, 36 liv. the quintal; ditto, ſecond quality, 33 liv. Ancona, firſt quality, 33 liv.; ditto, ſecond quality, 30 liv. to 31 liv. Piedmont, 3 group, 26 liv.; 4 group, 28 liv.

From theſe notes it appears, that hemp or flax is cultivated in ſmall quantities, through every part of France: generally for the uſes of domeſtic manufactures among the lower claſſes. A very intereſting political queſtion ariſes on thoſe diffuſed fabrics, and on which I ſhall offer a few obſervations under the chapter of manufactures.

Madder.

ALSACE.—*Straſbourg Fertenheim.*—Much of this plant is cultivated in various parts of Alſace, where the ſoil is very deep and rich, eſpecially on that which they call *limoneuſe*, from its having been depoſited by the river. They dig the land for it three feet deep, and manure highly: the rows are ſix to nine inches aſunder, and they hoe it clean thrice a ſummer. The produce of an arpent, of 24,000 feet, is 40 quintals green, before drying, and the mean price 6 liv. the quintal (16l. 12s. 6d. per Engliſh acre). Such is the account I received at Straſbourg; but I know enough of this plant, by experience, to conclude, that ſuch a produce is abſolutely inadequate to the expences of the culture, and therefore the crop is probably larger than here ſtated; not that the low rate of labour ſhould be forgotten.

DAUPHINE.—*Piere Latte.*—Planted here in beds,; but it is very poor, and apparently in a ſoil not rich enough.

To Orange.—Much ditto; all on flat beds, with trenches between, but weedy and ill cultivated. The price is 27 liv. the quintal, dry. Some juſt planted, and the trenches very ſhallow: dig at three years old. Price 24 liv. the quintal, dried in the ſun. The roots are ſmall and poor.

Avignon.—Price 24 liv. to 30 liv. but there is no profit if it be under 50 liv. It is three years in the land. Sow wheat after it; but if it were not well dunged the

the crop is poor. A good deal on flat beds, 8 feet wide, with trenches between, two broad and two deep, which are digged gradually for ſpreading on it.

Lille.—An eymena in three years gives 5 quintals, at 20 liv. to 24 liv. the quintal, but a few years ago was 50 liv. to 70 liv. The expences are very high, 120 liv. At 4l. a cwt. which equals a French quintal, madder paid a proper profit for inducing many Engliſh cultivators to enter largely into it; but falling to 40s. and 50s. per cwt. ſome were ruined, and the reſt immediately withdrew from it. But in France we find they carry on the culture; it is however weakly and poorly done; with ſo little vigour, that common crops, well managed, would pay much better.

Maiz.

The notes I took on the ſubject of this noble plant were very numerous; but as there is reaſon to believe that its culture cannot be introduced, with any proſpect of advantage, in this iſland, I ſhall make but a few general obſervations on it.

In the paper on the climate of France, I have remarked, that this plant will not ſucceed, in common cultivation, north of Luneville and Ruffec, in a line drawn diagonally acroſs the kingdom; from which intereſting fact, we may conclude, that a conſiderable degree of heat is neceſſary to its profitable culti-vation, and that all ideas of introducing it into England, except as a matter of curioſity, would be vain. It demands a rich ſoil or plenty of manure, and thrives beſt on a friable ſandy loam; but it is planted on all ſorts of ſoils, except poor gravels. I have ſeen it on ſands, in Guienne, that were not rich, but none is found on the granite gravels of the Bourbonnois, though that province is ſituated within the maiz climate. The uſual culture is to give two or three ploughings to the land; ſometimes one ploughing, and one working with the heavy bident-hoe; and the ſeed is ſown in rows at 2 feet or 2½, by 1½ or 2; ſometimes in ſquares. Some I have ſeen near Bagnere de Bigore, in rows, at 3 feet, and 18 inches from plant to plant. The quantity of ſeed in Bearn, is the eighth part, by meaſure, of the quantity of wheat ſown. It is univerſally kept clean by hoeing, in moſt diſtricts, with ſuch attention as to form a feature, in their huſbandry, of capital merit. In Auguſt, they cut off all that part of the ſtalk and herbage which is above the ear, for feeding oxen, cows, &c. and it is perhaps the richeſt and moſt ſaccharine* provender that the climate of France affords; for wherever maiz is cultivated, no lean oxen are to be ſeen; all are in high order. The crop of grain is, on an average, double the quantity commonly

* A real ſugar has been made from it. *Spec. de la Nature.* Vol. ii. p. 247.

reaped

reaped of wheat; about Navareen, in Bearn, more than that; and there the price (1787) is 54*ſ.* to 55*ſ.* the meaſure, holding 36 lb. to 40 lb. of wheat; but in common years 18*ſ.* to 20*ſ.* Whether or not it exhauſts the land is a queſtion: I have been aſſured, in Languedoc, that it does not; but near Lourde, in Guienne, they think it exhauſts much. Every where the common management is to manure as highly as poſſible for it. In North America it is ſaid to exhauſt conſiderably *; Monſ. Parmentier contends for the contrary opinion †: wherever I found it, wheat ſucceeds it, which ought to imply that it is not an exhauſting crop. The people in all the maiz provinces live upon it, and find it by far more nouriſhing than any bread, that of wheat alone excepted. Near Brive, in Quercy, I was informed that they mix one-third rye, and two-thirds maiz to make bread, and, though yellow and heavy, they ſay it is very good food. A French writer ſays, that, in Breſſe, maiz cakes coſt $9\frac{2}{3}$ deniers the pound, but that a man eats double the quantity of what he does of bread made of wheat ‡. A late author contends, that it is to be claſſed among the moſt wholeſome articles of human food ‖.

Every one knows that it is much cultivated in North America; about Albany, in New York, it is ſaid to yield a hundred buſhels from two pecks of ſeed §; and that it ſhoots again after being killed by the froſt, even twice; that it withſtands the drought better than wheat *(this is queſtionable)*; does much better on looſe than on ſtiff ſoils, and not well at all on clay. In South Carolina it produces from 10 to 35 buſhels per acre ¶. On the Miſſiſſippi two negroes made 50 barrels, each 150 lb.** In Kongo, on the coaſt of Africa, it is ſaid to yield three crops a year††. According to another account, great care is taken to water it where the ſituation will admit‡‡; this I have ſeen in the Pyrennees; but moſt of the maiz in France, even nineteen parts in twenty, are never watered. About Douzenac, in the Limouſin, they ſow it thick to mow for ſoiling, and at Port St. Marie, on the Garonne, they do the ſame, after the harveſt of other grain, which is the moſt profitable, and indeed admirable huſbandry. This is the only purpoſe for which it can be cultivated in northern climates. It might be ſown in England the firſt week in June, and mown the end of Auguſt, time enough to catch a late crop of turnips, or as a preparation for wheat.

* *Mitchel's Preſent State of Great Britain and N. America*, p. 157. † *Memoire ſur le Mais* 4to. 1785. P. 10. ‡ *Obſervations ſur l'Agriculture*, par M. Varenne de Fenille, p. 91. ‖ *Inſtruction ſur la Culture & les Uſages des Mais.* 8vo. 1786. P. 30. § *Kalm's Travels in North America.* Vol. ii. p. 245. ¶ *Deſcription of South Carolina.* 8vo. 1761. P. 9. ** *Du Pratz Hiſtory of Louiſiana.* Vol. i. p. 306. †† *Modern Univ. Hiſt.* Vol. xvi. p. 25. ‡‡ *Mem. de l'Acad. des Sciences.* 1749. P. 471.

Muſtard.

Muſtard.

ISLE OF FRANCE.—*Petiviers.*—At Denainvilliers, near this place, I ſaw them mowing muſtard, in full bloſſom, to feed cows with.

ARTOIS.—*Lillers.*—Much all the way to Bethune; ſow ſpring corn after it.

Orchards.

NORMANDIE.—*Falaiſe.*—Many apple and pear trees are ſcattered over the country. They never plant them on the beſt lands, as they are convinced that the damage to the corn, &c. is at leaſt equal to the value of the cyder; but on the poorer ſoils they conſider it as an improvement, forming a fourth, or third, and in ſome caſes even a half of the value of the land.

BRETAGNE.—*Doll.*—A cyder country; but reckon the trees at no real value beyond that of the land, for they ſpoil as much as they produce.

Rennes.—A common proportion is to plant thirty trees upon a journal (about five roods Engliſh), which, if well preſerved, will yield, on an average, 5 to 10 barriques of cyder every year; and the mean price 12 liv. the barrique, which is 120 pots; this year good orchards give 40 or 50 per journal, but they have produced none, or next to none, for four years paſt. The damage the trees do to the corn is ſo great, that, in common expreſſion, they ſay they get none. The cyder is made by the preſs, which is of the ſame kind as Jerſey, I ſuppoſe, brought from this country. The ground apples, and wheat or rye ſtraw, in layers under the preſs, and reduced to ſuch a deſiccated ſtate that they will burn freely immediately out of the preſs.

LORAINE.—*Blamon to Savern.*—The whole country ſpread with fruit trees, apples, pears, &c. from 10 to 40 rod aſunder.

AUVERGNE.—*Vaires.*—The valley of this place, ſituated in the Limagne, ſo famous in the volcanic hiſtory of France, is much noted for its fine apples, particularly the *rennet blanche*, the *rennet gris*, *calville*, and *apy*, all grafted on crab ſtocks.

Olives.

ROUSSILLON.—*Bellegard to Perpignan.*—Reckoned to pay 1 liv. each tree.

Pia.—The land under them fallowed every other year, and ſown with corn: they are pruned in the fallow year, yielding no fruit; a crop being only in the corn year.

LANGUEDOC.—*Narbonne.*—Olives pay, in general, 3 liv. each tree per annum; ſome 5 liv. Many fields of them are planted in rows, at 12 yards by 10.

Beziers.

Beziers.—The trees on the farm, that was Monſ. L'Abbé Rozier's, are 17 yards by 2.

Pinjean.—Some trees ſo large and fine are known to give 84lb. of oil in a year, at 10*ſ.* the lb. or 42 liv.; but they reckon, in common, that good trees give 6 liv. one with another; this epithet *good,* ſhews that the common average of all trees is much lower. In planting, if they mean to crop the land with corn, in the common manner, that is, one year in two, the other fallow, they put 100 trees on 8 ſeterées of land; but if they intend to have no corn at all, the ſame number on 4 ſeterées: under corn, the 8 ſeterées yield 40 ſeptiers of corn, each 100 lb. at 9 liv. (7s. 10½d.). The ſeterée is about half an acre, as I conclude, from the beſt intelligence I could procure. This proportion is 100 trees on four Engliſh acres, or 25 per acre: if they were all good, the produce in oil would be 150 liv. and of wheat 90 liv.—in all 240 liv. or 10l. 10s.; the half only of which is annual produce, or 5l. 5s. which ſeems not to be any thing very great, even ſuppoſing the trees to be all good, which muſt be far from the fact.

Montpellier to Niſmes.—The trees are 3 rods aſunder, by 1½; alſo 2 by 1½; both among vines; alſo 2 ſquare; alſo 1 by 1½.

Pont de Gard.—Planted at 1 rod and 1½; their heads almoſt join. They are all pruned to flat round heads, the centre of the tree cut out, cup-faſhion; and theſe formal figures add to the uglineſs of the tree.

VIVARAIS.—*Aubenas.*—In paſſing ſouth from Auvergne, here the firſt olives are met with.

DAUPHINE.—*Piere Latte to Avignon.*—Many; but ſeven-eighths dead from the froſt, and many grubbing up.

PROVENCE.—*Aix.*—Land planted with olives ſells at 1000 liv. the carterée, whilſt arable only 600 liv. but meadows watered 1200 liv. Clear profit of a carterée of olives, 40 liv. (21,600 feet, at 40 liv. it is 3l. 2s. 1d. per Engliſh acre). Gathering the olives 40 liv. 10*ſ.* the quintal: preſſing 2 liv.: cultivation 18 liv. the carterée: the wood pays the pruning.

Tour d'Aigues.—The olive, pomegranate, and other *hard* trees, as they are called here, bear fruit only at the end of the branches; whence, they conceive, reſults the neceſſity of their being pruned every other year. Thirty years ago, the common calculation of the produce, per olive, was 5*ſ.*; but now, the price being double, it may be ſuppoſed 10*ſ.*

Toulon.—They have great trees in this neighbourhood that are known to yield 20 liv. to 30 liv. a tree, when they give a crop, which is once in two years, and ſometimes once in three. Small trees yield 3 liv. 5 liv. and 6 liv. each, and are much more profitable than mulberries, for which tree the ſoil is too dry and ſtoney. Olives demand as great an expence in buildings, preſſes, coppers, backs, &c. as vines. Preſſing comes to 3 liv. a barrel. Crop of a large tree, 8

to 10 pannaux. Olives, in Provence, never pruned into the hollow cup-form, which is ſo general in Languedoc: they appear here in their natural form.

Hyeres.—They produce conſiderably in twenty or thirty years, and ſome have been known to be a hundred years old. I ſaw, going to *Notre Dame*, ſome that reſiſted the froſt of 1709. A good tree, of thirty years, gives, when it bears, 3 pannaux of olives; the pannaux holds 30 lb. to 32 lb. of wheat, and the common price is 24*ſ.* the pannaux. They have great trees, that give a *mot*, or 20 pannaux, or 24 liv. each tree. When fields, planted with olives, are bought, they are meaſured by the ſquare canne or toiſe; a canne of good land, well planted, 30*ſ.*; middling, 20*ſ.*; bad, 10*ſ.*; but there are ſome that ſell to 60*ſ.*; conſequently a middling arpent is 900 liv.

Antibes.—The largeſt trees I have ſeen in France are between this place and the Var, as if the near approach to Italy marked a vegetation unknown in the reſt of the kingdom.

The culture of this tree is found in ſo ſmall a part of France, that the object is not of very great conſequence to the kingdom; one ſhould, however, remark, that in Provence, where the beſt oil in Europe is made, there might be twenty trees to one that is found there; whence we may conclude, that if it were ſo profitable a huſbandry, as ſome authors have repreſented, they would be multiplied more. The moſt important point is, their thriving upon rocky ſoils and declivities, impenetrable to the plough; in which ſpots too much encouragement cannot be given to their culture.

Oranges.

PROVENCE.—*Hyeres.*—This is, I believe, the only ſpot in France where oranges are met with in the open air: a proof that the climate is more temperate than Rouſſillon, which is more to the ſouth; the Pyrennees are between that province and the ſun; but Hyeres lies open to the ſea; ſo indeed does the coaſt of Languedoc; and ſo does Antibes; but there is a peculiarity of ſhelter at Hyeres, from the poſition of the mountains, that gives this place the advantage. I always, however, doubt whether experiments have been made with ſufficient attention, when theſe nice diſcriminations are pretended, that are ſo often taken on truſt without ſufficient trial. The dreadful froſt of laſt winter, which deſtroyed ſo many olives, attacked the oranges alſo, which were cut down in great numbers, or reduced to the mere trunk; moſt of them, however, have made conſiderable ſhoots, and will therefore recover.

The King's garden here, in the occupation of Monſ. Fine, produced, laſt year, 21,000 liv. in oranges only, and the people that bought them made as much by the bargain; the other fruits yielded 700 liv. or 800 liv.: the extent of this

this garden is 12 arpents; this 1808 liv. per arpent, beſides the profit (94l. 7s. 7d. per Engliſh acre). A fine tree will produce 1000 oranges, and the price is 20 liv. to 25 liv. the 1000, for the beſt; 15 liv. the middling; 10 liv. the ſmall. There are trees here that have produced to the value of two louis each; and what is a more convincing proof of great profit, a ſmall one, of no more than ſeven or eight years, will yield to the value of 3 liv. in a common year. They are planted from the nurſery at two or three years old, and at that age are ſold at 30*ſ.* each; and it is thought that the flowers, ſold for diſtilling, pay all the expences of cultivation; they muſt, however, be planted on land capable of irrigation, for if water be not at command, the produce is ſmall.

Pomegranates.

PROVENCE.—*Hyeres.*—The hedges are full of them, and they are planted ſingly, and of ſmall growth: the largeſt fruit ſell at 3*ſ.* or 4*ſ.* each; middling, 1*ſ.*; little ones, 1 liard. A good tree, of ten or fifteen years, will give to the value of 2 liv. or 3 liv. a year.

Pines.

GASCOIGN.—*Bayonne.*—The great product of the immenſe range of waſte, as it is commonly called, *landes*, is reſin: the *pinus maritimus* is regularly tapped, and yields a produce, with as much regularity as any other crop, in much better ſoils. I counted from fifty to eighty trees per acre, in ſome parts; but in others, from ten to forty; thoſe with inciſions for the reſin are from 9 to 16 inches diameter. Some good common oak on this ſand, 12 to 14 inches diameter, but with bodies not longer than from 8 to 10 or 12 feet.

St. Vincent's.—Here pines are out for reſin, at the age of fifteen to twenty years; the firſt year at about 2 feet from the ground, the ſecond to 4 feet, the third to 6 feet, and the fourth to 8 or 9 feet; and then they begin again at bottom, on another ſide of the tree, and continue thus for 100 years: the annual value per annum in reſin, 4*ſ.* or 5*ſ.* When they yield no longer, they cut into good plank, not being ſpoiled by tapping. Much tar alſo is made, chiefly of the roots. Cork trees are barked once in ſeven years, and yield then about 15*ſ.* or about 2*ſ.* per annum. Men are appointed, each to a certain number of trees, to collect the reſin, with ſpoons, out of the notches, cut at the but-end of the tree to receive it.

Dax.—Pines pay 4*ſ.* a year in reſin. Pine woods, with a good ſucceſſion of young ones; from 1½ rod to 3 aſunder.

Tartaſs.—Several perſons united in aſſerting, that the pines give, one with another, 4*ſ.* to 5*ſ.* each, from 15 to 100 years old, and are then ſold, on an

average, at 3 liv. each; that taking the reſin was ſo far from ſpoiling the tree, that it was the better, and cut into better planks. This ſurpriſing me, I ſought a carpenter, and he confirmed it*. They added, that an arpent of pines was worth more than an arpent of any other land in the country; more even than of vines: that it would ſell, according to the trees, from 500 liv. to 1000 liv. while the incloſed and cultivated ſands would not yield more than 300 liv. or, at moſt, than 400 liv. The arpent, I found, by meaſuring a piece of 2 arpents, to be 3366 Engliſh yards (500 liv. is 31l. 10s. per Engliſh acre).

St. Severe.—Paſs ſeveral incloſures of ſandy land, reſembling the adjoining waſtes, ſown with pines as a crop; they are now of various heights; and very thick. See ſome very good cheſnut underwood on a white ſand.

GUIENNE.—*Langon.*—Many of the props uſed for their vines here, are young pines, the thinnings of the new ſown ones; are ſold for 36 liv. to 40 liv. the thouſand, or twenty bundles, each fifty pines.

Cubſac to Cavignac.—On the pooreſt lands ſow pines, which are not an unprofitable article of culture. At five years old they begin to thin them for vine props; and the ſmall branches are ſold in faggots. At fifteen years the produce is more conſiderable; and at twenty-five the beſt trees make boards for heading caſks. I ſaw a journal and half, the boards of which yielded 1200 liv. They ſow 135 lb. of wheat ſeed on a journal. Several crops of ſown pines very thick.

BRETAGNE.—*Quimperley to L'Orient.*—Pines abound in this country, and ſeem to have ſown themſelves all around; but none are cut for reſin.

To Vannes.—Such a ſcattering of them, that I apprehend all this country was once pine land.

AUVERGNE.—*St. George.*—In the mountains, ſee immenſe pine planks laid by way of fences, not leſs than 60 feet long, and 2 and 2½ broad.

Fix.—Dr. Coiffier has them in the mountains 80 feet high, and 10 feet round.

PROVENCE.—*Cuges to Toulon.*—In the rocky mountains of this coaſt, there are pines, and ſuch as are of any ſize are cut for reſin; but they ſtand too thin to yield an acreable produce of any account.

Cavalero to Frejus.—The mountains here are covered chiefly with pines, and have a moſt neglected deſert appearance.

To Eſtrelles.—The ſame; and hacked and deſtroyed almoſt as badly as in the Pyrennees.

Pines are juſtly eſteemed a profitable crop *for the landlord*, for they yield a regular and certain revenue, at a very little charge; no repairs, and no loſſes, by

* M. Secondat makes the ſame obſervation, *Mem. ſur l'Hiſt. Nat. du Chene.* Folio. 1785. P. 35. The ſame aſſertion is made in *Mémoire ſur l'Utilité du defrichement des Terres de Caſtelnau-de-Medoc.* 4to. 1791. *Réponſe au Rapport*, p. 27.

failure

failure of tenants. But, in regard to the nation, pines, like moſt of the poor woods of France, ſhould be reckoned detrimental to the public intereſt, ſince a kingdom flouriſhes by *groſs produce*, and not by *rent*.

Poppies.

ARTOIS.—*Lillers.*—Much cultivated for oil: they are called here *zuliette*. Get as good wheat after them as after coleſeed.

Aras.—Many here; they are reckoned to yield more money per arpent than wheat; equal to coleſeed; which, however, is a very uncertain crop.

LORAINE.—*Nancy to Luneville.*—Some fine pieces on a poor gravel.

ALSACE.—*Savern to Wiltenheim.*—Many poppies; ſome fine crops, and very clean.

Straſbourg.—Product three ſacks, at 24 liv. per arpent, of 24,000 ſquare feet (4l. 19s. 9d. per Engliſh acre). Manure for them, and ſow wheat after.

Our ideas of the exhauſting quality of certain plants, are, at preſent, founded, I believe, but upon that half-information which is ſcarcely a degree above real ignorance. It is a common obſervation, that all plants whoſe ſeeds yield oil, are exhauſters of ſoil; an obſervation that has ariſen, from the theory of oil being the food of plants. Experiments upon both have been ſo few and unſatisfactory, as to be utterly inſufficient for the foundation of any theory. Coleſeed, ſeeded in England, is almoſt generally made a preparation for wheat; ſo it is in France, and we here find the ſame effect with poppies. It can hardly be believed, that wheat, which demands land in heart as much as almoſt any other crop, ſhould be made to follow ſuch exhauſting plants as the theory of oil would make one believe theſe to be; it is the organization of the plant alone that converts the nouriſhment into oil; which, in one plant, turns it to a ſaccharine ſubſtance, and, in another, to an acid one; but the idea that plants are fed by oil, and that they exhauſt in proportion to their oil, is abſolutely condemned by the olive, which yields more oil than any other plant, and yet thrives beſt on dry arid rocky ſoils, of abſolute poverty, as far as oil is concerned. We ſhall be wholly in the dark in this part of agriculture, treated as a ſcience, till experiments have been greatly multiplied.

Potatoes.

ANJOU.—*Angers to La Fleche.*—More than is common in France.

LORAINE.—*Pont a Mouſon.* Throughout all this part of Loraine there are more potatoes than I have ſeen any where in France; twelve acres were at once under the eye.

To

To Nancy.—Many cultivated through all this country, but degenerated, by being ſown too often on the ſame land; and for want of new ſorts. A journal yields 20 toulins, or about 24 buſhels Engliſh; and 2½ journals are equal to an arpent de France, which makes the acreable produce miſerable. Price now, 3 liv. the toulin; was only 25*ſ.*

Luneville.—More ſtill; they plant them, after one ploughing, in April: for ſeed, cut the large ones only; but ſell the ſmaller ones uncut. Always dung much. Every man that has a cow, keeps the dung carefully for this crop; and ſuch as have no land, plant on other people's, without paying rent, that being the preparation for wheat: the crop of that grain is, however, very moderate, for the potatoe *pumps* much, to uſe the French expreſſion,—*i. e.* exhauſts greatly. Poor light ſoils anſwer beſt for them, as they are found not to do on ſtrong land. Product per journal, 30 to 50 *raſaux*, which meaſure contains 180lb. of wheat. I found an exact journal, by ſtepping, to be 1974 Engliſh yards, or about 65 rods. At 40 *raſaux*, each 3 Engliſh buſhels, it is nearly about 300 buſhels Engliſh per acre. The price is now, 7 liv. the *razal*, heaped; when low, 3 liv.; and in common, 4 liv. 10*ſ.* The culture increaſes much.

ALSACE.—*Savern to Wiltenheim.*—Many, and good potatoes.

Straſbourg.—Produce of an arpent, of 24,000 feet, 75 ſacks to 100, at 36*ſ.* to 60*ſ.* (at 2½ liv. and 90 ſacks, it is 15l. 10s. 7d. per Engliſh acre). Sow wheat after them, if manured, otherwiſe barley. In the mountains they pare and burn for them.

Scheleſtat.—Produce 50 or 60 ſacks, at 3 liv. but 4 liv. or 5 liv. ſometimes (55 ſacks, at 3½ liv. are 13l. 5s. 10d. per Engliſh acre). In planting, they think the difference is nothing, whether they be ſet cut or whole. The people eat them much.

Befort.—The culture continues to this place.

FRANCHE COMPTE.—*Beſançon.*—And a ſcattering hither.

Orechamps.—Now loſe the culture entirely.

AUVERGNE.—*Villeneuve.*—In theſe mountains they are cultivated in ſmall quantities.

VELLAY.—*Le Puy to Pradelles.*—Ditto.

To Thuytz.—They are met with every where here.

D'AUPHINE.—*St. Fond.*—Many are cultivated throughout the whole country; all planted whole; if ſliced, in the common manner, they do not bear the drought ſo well. They are plagued with the curl.

Theſe minutes ſhew, that it is in very few of the French provinces where this uſeful root is commonly found; in all the other parts of the kingdom, on inquiring for them, I was told, that the people would not touch them: experiments have been made, in many places, by gentlemen with a view to introduce them

them for the poor, but no efforts could do it. The importance, however, would be infinite, for their uſe in a country in which famine makes its appearance almoſt periodically, ariſing from abſurd reſtrictions on the corn trade. If potatoes were regularly cultivated for cattle, they would be ready for the poor, in caſe of very high prices of wheat; and ſuch forced conſumption would accuſtom them gradually to this root; a practice in their domeſtic œconomy, which would prevent much miſery, for want of bread. This object, like ſo many others, can only be effected by the exhibition of a large farm, highly ſtocked with cattle, by means of potatoes; and the benefit, in various ways, to the nation would make ſuch an exhibition exceedingly advantageous. But ſuch eſtabliſhments come not within the purview of princes or governments in this age: they muſt be enveloped in the miſt of ſcience, and well garniſhed with the academicians of capitals, or nothing can be effected.

Racine de Diſette.

ISLE OF FRANCE.—*Dugny.*—This plant, the *beta cycla altiſſima* of Linnæus, Monſ. Cretté de Paleuel has cultivated with attention: he has tried it by tranſplantation, as directed by Monſ. l'Abbé de Commerell; alſo by ſowing the ſeed broadcaſt where it remains; and likewiſe ſeed by ſeed, in ſquares of 15 inches; and this laſt way he thinks is the beſt and moſt profitable. The common red beet, which he has in culture, he thinks yields a larger produce; but it does not yield ſo many leaves as the other, which is ſtripped thrice in the ſummer by the hand, an operation which may anſwer where labour is exceſſively cheap; but I have my doubts whether the value in England would equal the expence of gathering and carriage. Cows and hogs, Monſ. Cretté has found, will eat the roots readily, but he has made no trial on it in fattening oxen or feeding ſheep.

ALSACE.—*Scheleſtat.*—The culture is common in this country: I viewed three arpents belonging to the maſter of the poſt, which were good and clean. They gather the leaves by hand for cows, and then return and gather again, and the roots are the beſt food for them in winter; they come to 8 lb. and 10 lb. and are ſown and planted like tobacco.

Rice.

DAUPHINE.—*Loriol.*—Sixty years ago the plain of Livron, one mile from Loriol, and half a league from St. Fond, more than a league long and a league broad, was all under rice, and ſucceeded well, but prohibited by the parliament, becauſe prejudicial to health.

Saffron.

Saffron.

ANGOUMOIS.—*Angouleme.*—The beſt land for this crop is reckoned that which is neither ſtrong not ſtoney, but rich and well worked; plant the rows ſix inches aſunder, and two inches from plant to plant; ſow wheat over the planted land, and gather the Saffron among the wheat; bloſſom at All-Saints, when they gather it. In a good year, and on good land, a journal yields 3 lb. which ſells, when dear, at 30 liv. per lb. but is ſometimes at 16 liv.: laſts two years in the ground, after which it is removed. They aſſert, that the culture would not anſwer at all if a farmer had to hire labour for it; all that is planted is by proprietors.

Tobacco.

FLANDERS.—Moſt farmers, between Lille and Montcaſſel, cultivate enough for their own uſe, which is now (November) drying under the eaves of their houſes.

ARTOIS.—*St. Omers.*—Some pieces of tobacco, in double rows, at 18 inches and 2 feet intervals, well hoed.

Aire.—A crop is worth three times that of wheat on the ſame land, and at the ſame time prepares better for that grain than any thing.

ALSACE.—*Straſbourg.*—Much planted in all this rich vale, and kept very clean. Product 8 to 10 quintals per arpent of 24,000 feet, at 15 liv. to 30 liv. per quintal (9 at 23 liv. is 14l. 6s. 2d. per Engliſh acre). Sow wheat after it; and the beſt wheat is after tobacco and poppies.

Benfeldt.—Great quantities here, and all as clean as a garden.

Scheleſtat.—Produce 6 quintals to 8 per arpent, at 16 liv. the quintal (8l. 15s. 7d. per Engliſh acre). This they reckon the beſt crop they have for producing ready money, without waiting or trouble. There are peaſants that have to 600 quintals. They always manure for it. They ſow it in March on a hot bed covered with mats; begin to plant in May, and continue it all June and the beginning of July, at 18 inches or 2 feet ſquare, watering the plants in a dry ſeaſon. When 2 feet high, they cut off the tops to make the leaves ſpread. Their beſt wheat crops follow it.

Tobacco, as an object of cultivation, appears in theſe notes to very great advantage; and a reſpectable author, in France, declares, from information, that, inſtead of exhauſting the land, it improves it like artificial graſſes*; which ſeems to agree with my intelligence; yet the culture has been highly condemned by others. Mr. Jefferſon obſerves thus upon it; "it requires an extraordinary

* *De l' Adminiſtration Provinciale par M. le Trone.* Tom. i. p. 267.

degree

degree of heat, and ſtill more indiſpenſably an uncommon fertility of ſoil: it is a culture productive of infinite wretchedneſs: thoſe employed in it are in a continued ſtate of exertion, beyond the powers of nature to ſupport: little food of any kind is raiſed by them; ſo that the men and animals, on theſe farms, are badly fed, and the earth is rapidly impoveriſhed. The cultivation of wheat is the reverſe in every circumſtance: beſides cloathing the earth with herbage and preſerving its fertility, it feeds the labourers plentifully; requires from them only a moderate toil, except in the ſeaſon of harveſt; raiſes great numbers of animals for food and ſervice, and diffuses plenty and happineſs among the whole. We find it eaſier to make an hundred buſhels of wheat than a thouſand weight of tobacco, and they are worth more when made*." This authority is respectable; but there are circumstances in the paſſage which almoſt remove the dependence we are inclined to have on the author's judgment. The culture of wheat preſerving the fertility of the earth, and raiſing great numbers of animals! What can be meant by this? As to the exhauſting quality of wheat, which is ſufficient to reduce a ſoil almoſt to a *caput mortuum*, it is too well known, and too completely decided, to allow any queſtion at this time of day; and how wheat is made to raiſe animals we muſt go to America to learn, for juſt the contrary is found here; the farms that raiſe moſt wheat have feweſt animals; and in France, huſbandry is at almoſt its loweſt pitch, for want of animals, and becauſe wheat and rye are cultivated, as it were, to the excluſion of other crops. Tobacco cannot demand an uncommon degree of heat, becauſe it has been cultivated on a thouſand acres of land ſucceſsfully in Scotland: and as to the demanding of too great exertions, the free hands of Europe voluntarily addict themſelves to the culture; which has nothing in it ſo laborious as reaping wheat. I take the American caſe to be this; ill huſbandry, not tobacco, exhauſted the land; they are now adopting wheat; and, if we may judge from the notions of the preceding quotation, that culture will, in a few years, give the finiſhing ſtroke to their lands; for thoſe who think that wheat does not exhauſt, will be free in often ſowing it, and they will not be long in finding out what the reſult will prove.

Monſ. Bolz, in Swiſſerland, ſays, that they are diſguſted with the culture of tobacco, becauſe it exhauſts their lands: half an arpent gave 5 to 6 quintals of leaves†. Eſtimated groſsly, this may be called a thouſand weight per acre, which Mr. Jefferſon compares with 100 buſhels of wheat; a quantity that would demand, in England, four acres of land to yield; and, as American crops do not yield in that proportion, it is one acre of tobacco being as expenſive as five or ſix of wheat, which ſurpaſſes comprehenſion.

* *Notes on the State of Virginia.* P. 278.

† *Mem. de la Societé Oeconomique de Berne.* 1763. Tom. I. p. 87.

The Straſbourg produce of 9 quintals, in the notes above, equal 15 cwt. per Engliſh acre. The Scheleſtat produce of 7 quintals is about 12 cwt. per acre.

Dr. Mitchel, many years before Mr. Jefferſon, gave the ſame account of the exhauſting quality of tobacco *.

The cultivation is at preſent ſpreading rapidly into countries that promiſe to be able to ſupply the world. In 1765, it was begun to be cultivated in Mexico, and produced, in 1778, to the value of 800,000l. and in 1784, 1,200,000l.†

Turnips.

GUIENNE—*Anſpan to Bayonne.*—*Raves* are, in theſe waſte tracts, at the roots of the Pyrennees, much cultivated; they manure for them, by burning ſtraw, as deſcribed under the article manure; weed, and, as they told me, hoe them; and have ſome as large as a man's head. They are applied entirely to fattening oxen. Maiz is ſown after them. The people here knew of the orders given by the King, for cultivating this plant, but I could not find they had had any effect. The practice obtained here before the two laſt ſevere years, which were the occaſion of their increaſing it, much more than any orders could do.

FLANDERS.—*Valenciennes to Orchies.*—Many fields of this root, but quite thick, though it was ſaid they have been hoed; theſe are all after-crops, ſown after corn.

NORMANDIE.—*Caen.*—In going to Bayeaux, many, both flouriſhing and clean, though too thick; but, on inquiry, found them all for the market, and none for cattle or ſheep. I thought the colour of the leaf differed from our own, and got off my horſe more than once to examine them. They are the *raves* of the ſouth of France; the roots, which ought to have been of a good ſize, were carrot-ſhaped and ſmall.

BRETAGNE.—*Belle-Iſle to Morlaix.*—Here is an odd culture of raves amongſt buckwheat; ſown at the ſame time, and given to cows and oxen, but the quantity is very inconſiderable.

Morlaix.—Get their beſt turnips after flax, ſometimes to a very good ſize; but, for want of ſufficient thinning the crops, in general, very ſmall roots muſt be produced; yet the leaves large, healthy, and vigorous. They ſow them alſo among buckwheat; but the product is trifling, and the uſe but momentary, as they plough the land for wheat.

ANJOU.—*Migniame.*—If one were to attend only to converſation, without going into the fields, a ſtranger would be perſuaded that the culture of turnips

* *Preſent State of Britain and North America.* 8vo. 1767. P. 149, 151.

† *Bourgoanne's Travels in Spain*, vol. i. p. 368.

flouriſhed

flouriſhed here: they actually give ſome, and cabbages too, to their cows, for every man has a ſcrap: but ſown quite thick, and the largeſt I ſaw not bigger than a gooſe egg; in general not a fourth of that ſize; and the largeſt piece I ſaw was half an Engliſh acre. They have, in like manner, patches of a ſort of kale, which is the *chou de Poitou*; this is inſtead of the *chou d'Anjou*, of which the Marquis de Turbilly ſpeaks ſo much; and which is quite neglected in this country now, in favour of this Poitou cabbage, that is found to produce many more leaves. To me it, however, appears inferior to the *chou de Vache* of Flanders.

To La Fleche.—A ſcattering of miſerable *raves* all the way.

ALSACE.—*Scheleſtat to Colmar.*—Some ſcattered pieces, but in very bad order; and none hoed, which they ought to have been three weeks before I ſaw them.

AUVERGNE.—*Iſſoire.*—Raves are cultivated for cattle, but on ſo ſmall a ſcale, that they ſcarcely deſerve mention. They ſow them alſo among buckwheat, which is *drawn by hand, when in bloſſom, for forage*, and the raves left. No hoeing, but ſome are weeded.

Brioude.—Many raves, and cultivated for cattle: common to 2 lb. weight.

St. George's to Villeneuve.—Many raves, but miſerable poor things, and all weeds.

Perhaps the culture of turnips, as practiſed in England, is, of all others, the greateſt deſideratum in the tillage of France. To introduce it, is eſſential to their huſbandry; which will never flouriſh to any reſpectable extent, and upon a footing of improvement, till this material object be effected. The ſteps hitherto taken by government, the chief of which is diſtributing the ſeed, I have reaſon to believe, failed entirely. I ſent to France, at the requeſt of the Count de Vergennes, above an hundred pounds worth of the ſeed; enough for a ſmall province. When I was at Paris, and in the right ſeaſon, I begged to be ſhewn ſome effects of that import; but it was all in vain. I was carried to various fields, ſown thick, and abſolutely neglected; too contemptible to demand a moment's attention. Not one acre of good turnips was produced by all that ſeed. It is with turnips, as in many other articles; a great and well cultivated Engliſh farm, of 700 or 800 acres, ſhould be eſtabliſhed, on an indifferent ſoil; and 200 acres of turnips cultivated upon it, and eaten on the land by ſheep, ſhould every year be exhibited; and a ſucceſſion of perſons educated on ſuch a farm, diſperſed over the kingdom, would do more to introduce the culture than all the meaſures yet attempted by government.

Walnuts.

BERRY.—*Verſon to Vatan.*—Many of theſe trees ſpread over the country, which yield a regular revenue by oil.

QUERCY.—*Souillac.*—Walnut-oil cake the fineſt food of all for fattening oxen. They export pretty largely of this oil, the trees being every where.

ANGOUMOIS.—*Rignac.*—Walnuts ſpread over almoſt every field.

Ruffec.—A common tree yields a boiſſeau of nuts; ſold at 3 liv. or 4 liv.; but a good tree 3 boiſſeau. All for oil, which the people eat in ſoups, &c.

POITOU.—Many through all parts of the province, which I paſſed in croſſing it. Oil univerſally made from them. This year (1787) all were ſo frozen, that the crop will be very ſmall; ſometimes get 16 boiſſeau a tree, even to 20 boiſſeau; the boiſſeau ſells generally at 20*ſ.* There is, on an average, one tree to an acre. One tree gives 5 or 6 meaſures of nuts, and each meaſure makes ſomething more than a pint of oil, which ſells at 18*ſ.* or 20*ſ.*

ANJOU.—Acroſs this whole province they are found every where, but none through Bretagne.

ALSACE.—*Iſenheim.*—Great numbers ſpread all over the country; for oil.

BOURBONNOIS.—*Moulins.*—Some eſtates have a good many ſcattered trees; the oil ſells at 12*ſ.* the lb.

AUVERGNE.—*Clermont.*—Many in every part of the country; a prime tree will, in a good year, give 20 lb. and even 30 lb. of oil; one of ten years 6 lb.; common price 6*ſ.* per lb.

Lempde.—Here they finiſh; as we advance from this village, no more are met with.

Various Plants.

QUERCY.—*Brives.*—Figs we met with here for the firſt time; they are ſcattered over the vineyards, and wrapped up in mats, to preſerve them from froſts.

Creiſſenſac.—*Gieyſe* much cultivated here; it is the *lathyrus ſetifolius.* Alſo *jaraſh*, the *vicia latharoides.* They ſow them both in September and the ſpring, which are generally uſed, mown green, for ſoiling.

Souillac.—They have no meadows in many diſtricts of this country, but ſupply the want by the above-mentioned plants, which are always uſed green. They do not anſwer equally in hay, as it is ſaid that the leaf falls off in drying.

Cahors.—Near this place meet with four new articles of cultivation; one a *vicia ſativa varietas*; another the *cicer arietinum*; the third the *ervum lens*; and the fourth the *lupinus albus.*

Cauſſade.—Here the *trifolium rubens* is cultivated, and continues through all the Pyrennees.——On all theſe articles I muſt, however, obſerve, that they do not ſeem to equal, for ſoiling, the common winter-vetch, which we cultivate ſo much in England; nor lucern, ſo ſucceſsfully ſown in France.

GUIENNE.

GUIENNE.—*Triticum Repens.* Upon the banks of the Garonne I met women loaded with the roots of this plant, going to ſell it at market; and they informed me it was bought to feed horſes with. It is applied to the ſame uſe at Naples. It grows with great luxuriance at Caygan Solo, in latitude 7*; and being the great plague of Engliſh huſbandry, may be called a univerſal grower. It ſeems, from a late account†, as if they cultivated it in the iſland of Nantucket, in America.

ISLE OF FRANCE.—*Dugny.*—Monſ. Cretté de Paleuel gave me ſome notes of experiments he had made on various plants, in drying them for hay.

The *epilobium anguſtifolium* makes hay that is readily eaten by ſheep, and loſes half in drying. They are very fond of the hay of the *ſpirea ulmaria*, the *lithum ſalicaria*, *thalictrum vulgaris*, *pucedanum ſilaus*, and *centaurea jacea*; all theſe loſe half, when made into hay; the *althæa officinalis* two-thirds. Monſ. Cretté is of opinion, from his trials, that theſe plants may be very uſeful in cultivation, for hay. He found, at the ſame time, that an arpent of wet meadow gave 13,200lb. of green herbage, which loſt two-thirds in drying. An arpent of winter-vetches 17,800 lb. green.

The common ſun-flower he has alſo cultivated; he plants it in rows, at two feet aſunder, and one foot from plant to plant; an arpent containing 16,200 plants; the leaves he gives to cows, the flowers may be uſed for dying; of the ſtems he makes vine props, or for French beans, and afterwards burns them; and of the ſeed he makes oil, which leaves a cake good for fattening cattle. Six perch of land, each of 18 feet ſquare, has given him 22 boiſſeau of ſeed, the boiſſeau $\frac{1}{12}$ of the ſeptier, that contains 240 lb. of wheat; but the crop exhauſts the land exceedingly, and ſmall birds devour the ſeed greedily.

The ſame gentleman compared cabbages and potatoes, in alternate rows: an arpent gave (half the ground) 62 ſeptiers of potatoes, which weighed 14,880 lb.; the cabbages on the ſame land, in number 5400, weighed 25,500 lb.

Dammartin.—Summer-vetches cultivated here, they are mown for hay, and yield 800 to 1000 bottes per arpent; 1100 have been known.

ARTOIS.—*La Recouſſe.*—Winter-vetches are found on every farm, on the good land from Calais to St. Omer: oats are mixed, to keep them up; and every one ſoils his horſes in the ſtable.

Aſs.—Some hops here.

ANJOU.—In the way from Angers to La Fleche, the number of citroules is very great, even to acres, and the crop extremely abundant; the metayers feed their hogs with them.

* *Foreſt's Voyage to New Guinea*, p. 16.

† *St. John's Letters of an American Farmer.* 8vo. 1782. P. 207.

AUVERGNE.

AUVERGNE.—*Brioude.*—Jarouſſe every where ſown, the end of Auguſt or beginning of September, for hay.

DAUPHINE.—*Loriol.*—The *melilotus ſibyrica*, from Monſ. Thouin, at the King's garden, at Paris, makes, in the garden of Monſ. Faujas de St. Fond, a moſt ſuberb figure; nobody can view its prodigious luxuriance without commending the thought of cultivating it for cattle. The *coronilla varia*, a common plant here, and of ſuch luxuriance, that it is hardly to be deſtroyed. The *hedyſarum coronarium* does well here.

PROVENCE.—*Cuges.*—Capers are here met with, for the firſt time, in going from Marſeilles to Italy. It is a low buſh, planted in ſquares of about 5 or 6 feet. This year they yield nothing, becauſe damaged by the froſt; but, in common, more profitable than vines; they mentioned 1 lb. per tree, at 30*ſ.*

Toulon.—Capers are not ſo profitable as vines. The buſhes here are planted at 6½ or 7 feet ſquare; and a good one will give 1½ or 2 lb. of capers; but the price varies prodigiouſly, from 30 liv. or 40 liv. to 120 liv. the quintal; average, 30 liv. or from 6*ſ.* to 20*ſ.* the pound.

Hieres *.—Capers here are planted in ſquares, at 6, 7, and 8 feet; each good buſhel yields 2 lb. from 6*ſ.* to 24*ſ.* the pound; but, in a groſs eſtimate of a whole crop, are not ſuppoſed to pay more than 6*ſ.* to 10*ſ.* per buſhel.

Graſſe.—Here is one of the moſt ſingular cultures to be met with, that of plants for making perfumes; whole acres of roſes, tuberoſes, &c. for their flowers, and a ſtreet full of ſhops for ſelling them: they make the famous otto of roſes, as good and as clear as from Bengal; and it is ſaid now to ſupply all Europe.

LYONNOIS.—The fromental of the French *(avena elatior)* is cultivated in this part of France, and in ſome diſtricts of Franche Compté. The ſeed is commonly ſold by the ſeedſmen, at Lyons, of whom I bought ſome to cultivate in England. The firſt perſon who mentioned it publickly was, I believe, Monſ. Miroudot, who wrote an eſſay upon it, in which he fell into an error, copied by many of his countrymen †, namely, that of calling it the ray-graſs of the Engliſh. The great botaniſt, Haller, was miſtaken in ſuppoſing it the *avena flaveſcens* ‡. King Staniſlaus made ſome experiments on it in Loraine. In Bretagne ‖ it has been found to yield ten times the produce of common meadows. That it is very productive cannot be doubted, but it is a very coarſe graſs: how-

* The natural hiſtorian of Provence mentions a ſingular profit by this plant, at Hieres, of 200 cannes ſquare giving 200 liv. net, while the ſame breadth, in common huſbandry, only 18 liv. *Mem. pour ſervir a l'Hiſt. Nat. de la Provence*, par M. Bernard. 8vo. Tom. i. p. 329.

† *Bomarre Dict. d' Hiſt. Nat.* Tom. ii. p. 565; v. p. 225.

‡ *Mem. de la Soc. de Berne.* 1770. P. 16.

‖ *Corps d'Obſerv. de la Soc. de Bretagne.* 1759, 1760. P. 44, 45.

ever,

ever, it merits experiments, and ought to be tried upon a large ſcale, as the qualities of plants cannot be aſcertained upon a ſmall one.

Citroules, in this province and the neighbouring ones, are cultivated largely, and rarely fail. They may be preſerved until the beginning of January: oxen, cows, and hogs eat them freely; for lean cattle they are given raw, but commonly boiled for fattening: from 10 lb. to 20 lb. a day, given to cows, ſoon ſhews the effect in the quality of milk. For fattening an ox, in Breſſe *, with them, they mix the citroule with bran or pollard, or flower of buckwheat, and boil them together, and give 35 lb. to 40 lb. to each beaſt per diem. In ſome places they apply them to feeding carp. The poor people eat them in ſoup, in moſt parts of the kingdom, but not in great quantities.

CHAP. XIV.

Of the Waſte Lands of France.

SOLOGNE.—THERE is, in this province, ſuch a large mixture of waſte, even in the moſt cultivated parts, and cultivation itſelf is carried on upon ſuch barbarous principles, that there will not be much impropriety in conſidering the whole as waſte; to every ſpot of culture called a farm, a much greater proportion of rough ſheep-walk and wood (eaten down and deſtroyed) is annexed; ſo that any good farmer, who got poſſeſſion of 1000 or 1500 acres, would conclude the whole as waſte, and treat it accordingly: by much the moſt unproductive and pooreſt part of ſuch a tract would, in every caſe, be the lands at preſent under the plough. I may, in confirmation of this general idea, add, that there are many abſolute waſtes in France, that yield as good, and even a better produce than all Sologne, acre for acre. I know no region better adapted for a man's making a fortune by agriculture, than this; nothing is wanted but capital, for moſt of the province is already incloſed.

BERRY.—*Chateauroux.*—Leaving this place for the ſouth, enter vaſt heaths of ling and furz, but much mixed with trefoils and graſſes. Some ſmall parts of theſe heaths are broken up, and ſo ill ploughed, that the broom and furz are in full growth. After this another heath, of ſeveral miles extent, where

* *Obſerv. et Exp. par Fenille*, p. 86.

the

the landlords will not give leave either to build or break up, reſerving the whole for ſheep, and yet not ſtocked; for the people aſſert, that they could keep twice the number, if they had them.

LIMOUSIN.—*To Limoges.*—The mountainous heaths and uncultivated lands are commons, and therefore every metayer ſends his ſheep in the common flock of the village.

BIGORRE.—*Bagneres de Luchon.*—The waſte tracts of the Pyrennees, by which are to be underſtood, lands ſubject to common paſturage, are ſo much ſubject to the will of the communities, that theſe ſell them at pleaſure. Formerly the inhabitants appropriated to their own uſe, by incloſure and cultivation, what portions they pleaſed; but this obtains no longer; at preſent the communities ſell theſe waſtes, and fixing a price on them, nearly to their value, new improvements are not ſo common as heretofore.

LANGUEDOC.—*Narbonne to Niſmes.*—This vale, which is by far the richeſt of Languedoc, in productions, is of no conſiderable breadth, yet the quantity of waſte neglected land in it is very great.

Monrejau to Lann-Maiſon.—Vaſt waſtes, covered with fern; the ſoil good; and land projecting into it cultivated to advantage.

Bagneres de Bigorre.—Theſe immenſe fern-waſtes continue for many miles, with many new improvements in them. They belong to the communities of the villages, which ſell portions of them to any perſons willing to buy. The price moſt common has been 20 liv. the journal, of 128 cannes ſquare, the canne 8 pans; the pan 8 inches and 4 lines, 4 journals making an arpent. The method of improving has been, firſt to burn all the fern and rubbiſh, then to mattock it and ſow rye, which is pretty good; then oats for ſix, ſeven, or eight years, according to circumſtances; after that they ſummer-fallow and take wheat. Some they leave to graſs and weeds, after thoſe eight crops of oats; a detail of the huſbandry of barbarians! They have all a right of commonage on the waſtes, as long as theſe continue unincloſed; conſequently can keep cattle, and eſpecially ſheep, to any amount in ſummer; yet, in their incloſed improvements, they give not a thought to raiſe winter food! Such ſtupidity is deteſtable. The pariſh of Cavare has 104,000 arpents of theſe waſtes, without one metayer; all are peaſant proprietors, who buy morſels as it ſuits them. The improvements are exempted from tithes for ten years; but not at all from the King's taxes, which is ſhameful.

BEARN.—*Pau to Moneins.*—Vaſt waſtes of rich ſoil, covered with an immenſe product of fern, to the amount of five or ſix waggon loads an acre.

St. Palais to Anſpan.—Vaſt waſtes; belonging to the communities of the pariſhes, that ſell them to whoever will buy: a common price 120 liv. per arpent; but after they are brought into culture, they ſell for at leaſt 300 liv. The advantages

vantages of this ſyſtem, which extends through the whole region of the Pyrennees, is prodigious: it excludes the rights of commonage, becauſe all is incloſed as faſt as bought; and enables every induſtrious man, that ſaves a little money, to become a land proprietor, which is the greateſt encouragement to an active induſtry the world can produce; it has, however, one evil, that of too great a population.

Bayonne to St. Vincents.—In this line I came firſt to the *landes* of Bourdeaux, becauſe they extend from the gates of Bayonne to thoſe of Bourdeaux, and of which I had read ſo much, that I was curious to view and examine them; they are ſaid to contain 1,100,000 arpents *. They are covered with pines, cork-trees (only half the value of pines), broom, whins, ling, and furz; the ſoil ſand, but the growth of trees ſhews a moiſt bottom. There is a good deal of cultivation mixed with the waſte this firſt ſtage. There is much land alſo under water, a ſort of ſandy fen. Paſs a great ſpace, without trees, covered with dwarf furz, ling, and fern. Others before Dax; one of them of five or ſix miles long, by two or three broad: much rough graſs and ling on it: but none of theſe tracts appear half ſtocked.

Dax to Tartas.—This diſtrict is a deep white ſand, the whole of which has evidently been *lande*, but part of it incloſed and improved; much is, however, yet rough.—Singular ſcene of a blowing ſand, white as ſnow, yet oaks growing in it two feet diameter; but a broken ground diſcovers a bed of white adheſive earth, like marl, which explains the wonder.

Learn at Tartas, that theſe immenſe waſtes, the *landes*, without pines or wood, are to be purchaſed, at all times, very cheap indeed, of the King, the great lords, and of the communities of many pariſhes, even ſo low as 3 liv. per arpent, with an exemption from tithes, and from taxes for twenty years. But every one here reckons them ſo bad, that all the money ſpent would be ſure to be loſt; yet it is admitted, that there is a bed of marl or clay under all the country. This opinion is chiefly founded on the attempts of Monſ. Rollier, of Bourdeaux, having made a trial of cultivating them, and ſucceeded very ill. I gueſſed how ſuch improvements had been attempted, and told my informants what I ſuppoſed had been done; and my gueſs proved exactly right: corn—corn—corn—corn; and then the land pronounced good for nothing. It does not ſignify telling ſuch people, that the great objects, in all improvements of waſtes, are cattle, and ſheep, and graſs, after which corn will be ſure. Nothing of this kind is comprehended from one end of France to the other.

As I ſhall here take my leave of theſe *landes*, I may obſerve, that, ſo far as they are covered with pines, they are not to be eſteemed waſtes; but, on the contrary, occupied with a very profitable culture, that does not yield leſs than from 15s.

* *De la Neceſſité d'Occuper tous les gros Ouvriers*, p. 8.

to 25s. an acre annual revenue. Of the very extenſive tracts not ſo employed, and which are to be purchaſed at ſo cheap a rate, they are among the moſt improveable diſtricts in the kingdom, and might be made, at a very ſmall expence, capable of ſupporting immenſe flocks of ſheep.

Cavignac to Pierre Brune.—Many ſandy waſtes, with white marl under the whole.

To Cherſac.—Great waſtes, of many miles extent, covered with fern, ling, and ſhrubby oak; all greatly improveable.

To Montlieu.—Ditto. Many of theſe waſtes belonged to the Prince of Soubiſe, who would not ſell, but only let them; the conſequence has been, that no improvements have been wrought.

La Graule.—The waſtes in this country are ſold at 10 liv. the journal, and leſs; ſome better at 30 liv. The journal here is to the Engliſh acre as ten to thirty-eight; it conſiſts of 10 carraux, each 18 feet ſquare.

NORMANDIE.—*Valogne to Cherbourg.*—Monſ. Doumerc, of Paris, having bought of Monſieur, the King's brother, 3000 arpents, part of 14,000 ſold at the ſame time, being parcel of an ancient, but much neglected, foreſt, has made an improvement here, which, ſo far, deſerves attention, as it ſhews the principles on which French improvers proceed. He has brought into culture 700 verges, which form his preſent farm, around a houſe for himſelf, and another for his bailiff, all built, as well as many other edifices, in much too expenſive a manner; for theſe erections alone coſt 2500 louis d'or. Such unneceſſary expenditures in building is generally ſure to cripple the progreſs in much more neceſſary matters. The firſt buſineſs in the improvement, was to grub up the wood; then to pare and burn; and manure with lime, burnt with the furz, fern, and heath of the land; the ſtone was brought from Valogne: as ſoon as it was cleared, it was fallowed the firſt year for wheat. Such infatuation is hardly credible! A man is commencing his operations in the midſt of 3000 acres of rough ground, and an immenſe paſturage for cattle and ſheep, begins with wheat; the ſame follies prevail every where: we have ſeen juſt the ſame courſe purſued in England, and preſcribed by writers. Such people think cattle and ſheep of no importance at the beginning of theſe improvements. This wheat, limed at the rate, per arpent, of 7 or 8 tonneaux, of 25 boiſſeau, each 18 pots of 2 pints; 4 boiſſeau of ſeed ſown, and the crop 40 boiſſeau. After this wheat ſown 5 boiſſeau of oats, the crop 40. Then barley, ſeed 4 boiſſeau, produce 20 to 25 boiſſeau. With this barley clover ſown; mown the firſt year twice, and paſtured the ſecond; being then ploughed for wheat, which is inferior to the original crops; then oats and fallow again. From all theſe crops it is ſufficiently evident, that French farmers eſteem corn, and not cattle, the proper ſupport of a new improvement. The ſoil which has been thus reclaimed,

claimed, is on a ſtone quatry in general; a friable ſandy loam, covered with a ſtrong ſpontaneous growth (where not foreſt) of furz, fern, and, in ſome places, heath; mixed with much graſs, and even clover and *millefolium*; which, if properly ſtocked by cattle, well fed in winter, would be of conſiderable value in its preſent rough ſtate.

Though the methods purſued have not been calculated on the beſt principles, yet there is certainly a conſiderable degree of merit in the undertaking. Laſt year's crop of wheat produced 40,000 gerbs: and this year (1787) there is one piece of oats, of 80 verges, which gives 12,000 gerbs, at 15 boiſſeau per hundred; each boiſſeau 40 lb. and the price at preſent 45*ſ.* The preſent ſtock, 207 wethers, 10 horſes, 21 working oxen, 10 cows, 1 bull, 6 young cattle, are certainly fine, for a ſpot where, ten years ago, Monſ. Baillio, the bailiff, who has executed the whole, and who ſeems to be a truly excellent man, was in a hovel, with no other ſtock than a dog. The whole improved, would now let at 15 liv. per verge, 2½ to the arpent.

BRETAGNE.—*Combourg to Hédé.*—Paſs an immenſe waſte for a league, but to the left a dead level, boundleſs as the ſea; high lands at one part, ſeemingly 8 or 10 leagues off. Every part which the road paſſes, has been under the plough, for the ridges are as diſtinct as if made but laſt year; and many ruined banks of hedges croſs it in various ways. The ſpontaneous growth, furz, ling, and fern; the ſoil good, and equal to valuable crops, in a proper management. The King has part, Monſ. de Chateaubriant part, and other ſeigneurs alſo; but every body I talked with ſays, it is good for nothing. Would to heaven I had 1000 acres of it at Bradfield! I would ſoon put that aſſertion to the teſt.

Rennes.—The waſte lands, which, in almoſt every part of the province, extend for many leagues, are almoſt every where to be bought, in any quantity, of the ſeigneurs, at 10*ſ.* the journal, which is to the Engliſh acre as 47 to 38, with a ſmall quit-rent per annum.

St. Brieux.—Inquiring here into the period of the cultivation which I every where remarked on the *landes* of Bretagne, I was told, that it was no antient culture, but common for peaſants, who took them of the ſeigneurs, to pare and burn, with the *ecoubu*; exhauſt; and then leave them to nature: and this for forty, fifty, and ſixty years back. Rented for ever at 20*ſ.* to 30*ſ.* the journal.

St. Nazaire to Savanal.—Immenſe bog marked on all the maps of Bretagne, and filling the ſpace of many leagues, covered with vaſt growth of bog myrtle, and coarſe graſſes, three or four feet high; what a field for improvement, in a climate that gives ſuch a ſpontaneous growth!

To Nantes.—In the *landes*, which, ſtrange to ſay, extend to within three miles of Nantes, there was an improvement attempted ſome years ago: four good houſes of ſtone and ſlate are built, and a few acres run to wretched graſs,

which have been tilled, but all ſavage, and become almoſt as rough as the reſt: a few of the banks have been planted. This may be the improvement I heard of afterwards at Nantes, made by ſome Engliſhmen, at the expence of a gentleman, and all the parties ruined. I inquired how the *improvement* had been effected: pare and burn; wheat; rye; oats!!! Thus it is for ever: the ſame methods, the ſame failures, the ſame folly, the ſame madneſs. When will men be wiſe enough to know, that good graſs muſt be had, if corn is the object?

Nantes.—I have now travelled round the vaſt province of Bretagne, and may obſerve, that ſo large a proportion of it is waſte, as to be difficult to calculate: I have paſſed tracts of land, of three, four, five, and even eight miles in extent, without any cultivation, and I have heard of much more conſiderable, even to fourteen leagues in length. I have marked one diſtrict in the map which contains ſome hundred thouſand acres. Three-fourths of the province are either waſte, or ſo rough as to be nearly the ſame thing. This is the more ſurpriſing, as here are ſome of the firſt markets in France; that is to ſay, ſome of the moſt conſiderable commercial towns; and every where the vicinity of the ſea. Theſe enormous waſtes, which are ſaid to exceed two millions of arpents*, are found, as I have remarked, in my notes on the great road, within four miles of ſuch a city as Nantes: vaſt diſtricts are to be had on leaſes, or rather property for ever, on the payment of very ſlight fines. The ſoil is generally very improveable; I mean, convertible to cultivation, at a very ſmall expence, and with great facility; contrary to the aſſertion of every body in the province, who have been ſo uſed to ſee it deſolate, that they cannot readily believe it capable of a better huſbandry than being burnt, exhauſted, and left to nature. The means of improving theſe waſtes are abſolutely unknown in France, and not much better underſtood in England. The profit of the undertaking, however, when properly purſued, upon the never-failing principle of graſs—ſheep—cattle—corn; inſtead of the common blunder, which puts the cart before the horſe (if I may uſe a vulgar proverb), will be found great and rapid.

ANJOU.—*Turbilly.*—In the journal-part of this work, I have explained the motives which carried me out of my road, to view the waſtes of this vicinity, and particularly the improvements of the late Marquis of Turbilly, deſcribed at large in his *Memoire ſur les Defrichemens*, which has been ſo often cited in almoſt every language.

The immenſe heaths, or *landes*, are, in general, a ſandy or gravelly loam; ſome on a gravel, others on a clayey, and others on a marley bottom; and others, again, on imperfect quarry ones: the ſpontaneous growth would predominantly be every where foreſt, particularly of oak, if it were incloſed, and

* *De la Neceſſité d'Occuper tous les gros Ouvriers*, par Monſ. Boncerf. 1789. P. 8.

preſerved

preſerved from depredation. At preſent, it is wood browſed and ruined, fern furz, broom, ling, &c. &c. In the deſert ſtate in which the whole country is left at preſent, the value is nothing elſe but what it yields to a few cattle and ſheep; not the hundredth part of what might be kept, if any well regulated proviſion were made for their winter ſupport. I paſſed ten miles over theſe heaths; they were, in ſome directions, boundleſs to the view; and my guide aſſured me, I might continue travelling upon them for many days. When at Tours, I was told of their extending much in that direction alſo. The climate is good. There are ſtreams that paſs through theſe waſtes, which might be employed in irrigation, but no uſe whatever made of them; there are marl and clay under them, for manure; and there is every where to be found plenty of paſturage, for the immediate ſummer food of large flocks.—In a word, there are all the materials for making a conſiderable fortune——except ſkill and knowledge.

Such was the country in which the late Marquis of Turbilly ſat down, at an early period of life, determining to improve his eſtate of 3000 arpents in theſe deſerts; with all the neceſſary activity of diſpoſition; every energy of mind; and that animated love of laudable attempts, to give life and efficacy to the undertaking. Some meadows and plantations, which he made, ſucceeded well, and remain; but, of all his improvements of the heaths, to the inconſiderable amount of about 100 arpents, hardly any other traces are now to be ſeen, except from the more miſerable and worn-out appearance of the land; which, after cropping, was, of courſe, left in a much worſe condition than if it had never been touched. The fences are quite deſtroyed; and the whole as much *lande* as before improvement. This flowed from the unfortunate error, ſo common, indeed ſo univerſal, among the improvers of waſte lands; and unexceptionably ſo in France—that of improving, merely for the purpoſe of getting corn. Pyron, the labourer who worked in all the Marquis' improvements, informed me, that he pared and burnt, which is the common practice of all the country, and then took three crops of corn in ſucceſſion; that the firſt was very good, the ſecond not good, and the third good for nothing, that is, not above three times the ſeed: from that moment there was an end of improvement; it only crawled, during many years, to the amount of 100 acres; whereas, if he had begun on right principles, he would, in all probability, have improved the 3000; and, others copying his modes, the whole country might, by this time, have been under cultivation. It was reckoned a vaſt effort in him to fold 250 ſheep: and this was the beſt engine he had in his hands; but giving the fold for corn, it was loſt as ſoon as exerted. Inſtead of 250 ſheep, the Marquis ſhould have had 500 the firſt year, 1000 the ſecond, 1500 the third, and 2000 the fourth; and all his paring, burning, manuring, folding, exerted to raiſe turnips (not

their

their contemptible *raves)* to winter-feed them; with ſo much burning, folding, and eating off the turnips, the land would have been prepared for graſs; and when once you have good graſs, good corn is at your command. Thus corn was the laſt idea that ſhould have entered his head: inſtead of which, like other French improvers, he ruſhed upon it at once—and from that inſtant all was ruined.

The particular advantages of the ſpot are conſiderable, if ever an improver ſhould ariſe, with knowledge enough to purſue the methods that are adapted to the ſoil and ſituation. The hills of all the country are ſo gentle, that they are to be tilled with great eaſe; offering the advantage of perennial ſtreams, that run at preſent to waſte in the vales. There are rich veins of white marl, with an under-ſtratum, in many places, of clay. There is a hill of ſhell ſand, for improving the ſtiffer ſoils and the moory bottoms. There is lime-ſtone at the diſtance of half a league, and plenty of peat to burn it. The Marquis of Galway's father ſpread ſome of the ſhell ſand on a ſmall poor field, and had an immediate luxuriance of crop in conſequence. The preſent curé of the pariſh has tried the marl, with equal ſucceſs. But both theſe manures, and indeed any other, would be abſolutely loſt, if a ſucceſſion of corn crops were immediately to follow. It is this valuable under-ſtratum of clay and marl which gives ſuch a growth to wood. In paſſing from La Fleche to Turbilly, I was amazed, in ſome ſpots, at the contraſt between the apparent poverty of the ſurface ſoil, and the oaks ſcattered about it; they are, in general, eaten up by cattle, yet the bark is clean and bright, and this year's ſhoots four and even five feet long. A common mode, and indeed the only one, of attempting improvements here, is to permit the peaſants to pare and burn pieces of the heath; to take five crops in ſucceſſion, but to leave the ſtraw of the laſt; to fence the piece around; and to ſow whatever ſeeds of wood the landlord provides, uſually oak, for a copſe, which, in this villainous way, ſucceeds well; but as ſuch copſes are fenced with a ditch and bank only, and never any hedge planted, they are preſently open and eaten.

MAINE.—*Gueſſelard.*—The *landes* of Anjou extend over a great part of Maine alſo. Here they told me, that the extent in that neighbourhood is hardly leſs than ſixty leagues in circumference, with no great interruption of cultivation. The account they give of the ſoil is, that it is abſolutely good for nothing but to produce wood, which it will do very well. The ſeigneurs fief it out for ever, in any quantity, at the rent of half a buſhel of oats an arpent (the buſhel 30 lb. of wheat), and ſome at 10*ſ.* to 20*ſ.* The peaſants pare and burn, and get a very fine crop of rye; then another poor crop of rye; and after that a miſerable one of oats; reckoning, in common, that a burning will give juſt three crops; after which the land is ſtrictly good for nothing, but is left to nature

ture to recover itſelf. The price of paring and burning 30 liv. per arpent. I can hardly record theſe inſtances of barbariſm with tolerable patience—without dealing execrations, not againſt a poor unenlightened peaſantry, but againſt a government poſſeſſing, in demeſne, immenſe tracts of theſe lands, without ever ordering any experiments to be made and publiſhed, of the beſt methods of improving them. But had it come into any ſuch project, and had thoſe experiments had French conductors, they would have been merely with a view of getting corn! corn! corn!

To Le Mans.—Much of theſe waſtes here reſemble the ſands of Sologne; upon a dead level, and water ſtanding in many places; yet the ſoil a ſand; and, in ſpots, even a running one: it ariſes from the ſame circumſtance which makes them productive of oak timber, wherever preſerved, viz. the bottom of clay and marl.

BOURBONNOIS.—*Moulins.*—Three-fourths of the whole province waſte, or heath, or broom, or wood.

St. Pourçain.—As I quitted the Bourbonnois in this vicinity, entering Auvergne, it will not be improper to remark, that the whole province, as well as that of Nevernois, ought, reſpecting all the purpoſes of improvement, to be deemed waſte. The culture that is carried on, without any exception, on the arable lands, is only fallowing for rye; and, after two or three rounds, the land is ſo exhauſted by this bleſſed ſyſtem, that it is left to weeds: broom is the prevalent ſpontaneous growth in ſuch a caſe; and if the broom be left for a number of years, it becomes a foreſt. This rye-courſe produces the landlord, for his half (as all is in the hands of metayers), about 2s. 6d. or 3s. an acre through the whole farm, by corn, cattle, &c.; and at ſuch rates a vaſt proportion of the province is chiefly to be bought. Conſidering that the lands are all incloſed; that wood enough is every where found; that the country is furniſhed with a ſufficient quantity of buildings; that the roads are excellent; that it enjoys a navigation to the capital; that markets are good, and prices high; that there is marl or clay under the ſands and ſandy gravels; that the climate is one of the fineſt in Europe; and the country highly pleaſant and beautiful: when all theſe circumſtances are well weighed, it will be admitted that no part of France is ſo eligible to eſtabliſh a great and profitable improvement; but, as I muſt again repeat it, the whole province appears waſte to the eyes of an Engliſh farmer.

AUVERGNE.—*Brioude.*—The mountains in this neighbourhood too much cultivated; the earth is, by ſuch means, waſhed away by ſtorms, and torrents drive away every thing.

VIVARAIS.—*Pradelles.*—Pare and burn old turf in these mountains. Great tracts burnt, exhauſted, and left to nature to recruit.

To Thuytz.—Cultivation is carried on in theſe mountains to an incredible height; and is all by hand. In ſome caſes, earth is carried, by hand, in baſkets, to form the terraced beds, that yield a difficult and ſcanty crop, that is brought away on the back. Nothing could poſſibly ſupport ſuch exertions, but the whole being ſmall properties; every peaſant cultivates his own land.

PROVENCE.—*Tour d'Aigues.*—The mountains here are all calcareous, yet they are, from a vicious culture and management, deſtroyed and abandoned, and yield ſubſiſtence to a few miſerable goats and ſheep only; ſuch mountains in the Vivarais, the Preſident remarks, are covered with ſuperb cheſnuts, that yield a good revenue;—this country would do equally well for them, as appears from the very fine ones found in the park of Tour d'Aigues. The cutting of every buſh for burning the earth is the cauſe; this ſpecies of culture looſens the ſurface, and renders it a prey to torrents; ſo that all is waſhed into the rivers, and becomes the deſtruction of the plains. The Durance, in its whole courſe, of near 200 miles, has deſtroyed, on an average, to the breadth of half a league.

General Obſervations.

In the preceding notes, mention is often made of great tracts of country, ſo miſerably cultivated, that the whole would, by a good Engliſh farmer, be conſidered as *waſte*. This is particularly the caſe in Bretagne, Maine, Anjou, Sologne, Bourbonnois, &c.; and it is this circumſtance which reduces the general average product of France to ſo low a pitch, as appears in the chapter which treats of it, notwithſtanding the immenſe tract of twenty-eight millions of rich land, the products of which are, of courſe, very high. Here then ought to be the great effort of a new ſyſtem of government in France. The revolution has coſt immenſe ſums; and has occaſioned a happy defalcation of the revenue, provided it be replaced, wiſely and equally, on ſome object of general conſumption, *and not on land*; but the public burthens of the kingdom are ſo heavy (proportioned to its conſumption and circulation), that every attention ſhould be exerted to increaſe and improve the contributing income; and this can in no way, and by no methods, be effected ſo well and ſo eaſily, as by ſpreading improvements over theſe immenſe waſtes, which are ſuch a diſgrace to the old government. The waſtes alone are calculated, in theſe ſheets, at 18,000,000 of Engliſh acres; if to theſe we add the tracts, in the above-mentioned provinces, which, though cultivated, are no more productive than waſtes, and much of them not of equal profit, we cannot reckon for the whole less than 40,000,000 of acres that are in a waſte ſtate: not abſolutely unproductive, but which would admit of being rendered four, five, ſix, and even ten times more ſo than they are at preſent. This extent is nearly equal to that of

of the kingdom of England; whence we may judge of the immenſe reſources to be found in the improvement of the agriculture of France; and the wiſdom of the meaſures of the National Aſſembly ought to be eſtimated in proportion to their exertions in this reſpect, rather than in any other. If they give a ready, immediate, and abſolute right of incloſure; an exemption from all taxation whatever, for twenty-one years; and, by a wiſe ſyſtem of impoſts, the future proſpect of not being too much burthened; if ſuch be their encouragements, in addition to the great ones already effected, particularly in the abolition of tithes, they may expect to ſee, in a few years, great undertakings on theſe deſolate tracts. But the policy of a good government will not, in this point, do the whole; it may encourage buildings, incloſures, manuring, and the inveſtment of large capitals; but if theſe ſoils be attempted to be cultivated, as they have hitherto always been in France, failure, bankruptcy, and ruin, will be the conſequence; and the lands, after a few years, left in a worſe ſtate than they are in at preſent. The government ſhould therefore not omit taking the neceſſary ſteps, to have inſtructions well diffuſed for the cultivation of theſe immenſe tracts of country; not in the ſpirit of the old * ſyſtem, by printing memoirs, which, if followed, probably would ſpread more miſchief than benefit, but by the exhibition of a farm in each conſiderable diſtrict, under a right management, and in that degree of perfection of culture which is applicable to the practice of all mankind; of the poor farmers as well as of rich ones: every other ſpecies of perfection does well enough for gentlemen to commend, but is not adapted for farmers to imitate. One large farm, taken entirely from waſte, in Bretagne, another in Anjou, a third in Sologne, a fourth in Bourbonnois, and a fifth in Guienne, would be ſufficient. If theſe farms were cultivated on right

* The edict, exempting new improvements from taxation, was in the right ſpirit. We are informed by Monſ. Necker, that from 1766 to 1784, no leſs than 950,000 arpents were declared *defrichés*. *De L'Adminiſt. des Fin.* 8vo. T. iii. p. 233. There can be no doubt but the greater part of theſe are long ſince abandoned again to nature. I never met with a ſingle perſon in France who had half an idea of improving waſte lands; and I may add, that, of all other practices in the agriculture of England, this is the leaſt underſtood. See my *Obſervations on the preſent State of the Waſte Lands.* 8vo. In regard to the excellent edict above-mentioned, there occurs a proof of the groſs and conſummate ignorance which one meets ſo often in France on all agricultural ſubjects. In the *Cahier du Tiers Etat de Troyes*, p. 38, they demand the abrogation of this edict, as prejudicial to the nouriſhment and multiplication of cattle. Even the nobility of *Cambray*, *Cahier*, p. 19, are againſt cultivating commons. The nobility of *Pont-à-Mouſſon*, *Cahier*, p. 38, declare, that the encouragement of incloſures and *défrichemens*, is prejudicial to agriculture; ſhame on their folly! The clergy are wiſer; for they demand that the poſſeſſors of waſtes ſhall either cultivate them themſelves, or let others that are willing, on reaſonable terms. *Cahier de Melun & Moret*, p. 22; and that all commons ſhall be alienable for the proſperity of agriculture. *Bayonne*, Art. 51. And ſome of the *Tiers Etat* alſo; all commons to be divided. *Cotentin MS.* And new *défrichemens* to be exempted from all taxes for twenty years. *Nimes*, p. 19. *La Rochelle*, Art. 17, *MS.*

practical principles, on thoſe of utterly diſregarding corn till the ample ſupport of ſheep and cattle (but particularly the former) in winter, by means of green crops, and in ſummer by graſſes, gave ſuch a command and facility of action, that whatever corn was then ſown, would, in its produce, be worthy of the ſoil and climate of France, yielding ten for one on theſe waſtes, inſtead of five or ſix for one, the preſent average of cultivated lands in that kingdom. If this were done, I ſay, the profit of *ſuch* improvements would be equally great and durable; the practice exhibited would take deep root in the reſpective provinces; and extenſive and ſpeedy improvements would be the conſequence. By ſuch a policy, the National Aſſembly would prove themſelves genuine patriots; the kingdom would flouriſh; population, which, at preſent, is a burthen, would be rendered uſeful, becauſe happy; and the conſumption and circulation of theſe provinces increaſing, would give a ſpur to thoſe of the whole ſociety; the weight of taxes would leſſen, as the baſis enlarged that ſupported it:—in a word, every good effect would flow from ſuch undertakings, if properly executed, that can add to the maſs of national proſperity; and conſequently the moſt worthy of the attention of an enlightened legiſlature*.

Attempts have been made to improve theſe waſtes, but always with ill ſucceſs; I ſaw a neglected farm gone back nearly to its priſtine ſtate, not far from Nantes; the Marquis of Turbilly's, in Anjou, had no better ſucceſs; and equal failures attended thoſe that were tried on the heaths of Bourdeaux; and I heard of ſome others, ſimilar undertakings, in different parts of the kingdom; but, in general, they were all equally unſucceſsful; and no wonder, for all were conducted on the ſame plan, with no other object in view than corn; but this is the leaſt important of the products, as it hath been above obſerved, that ſhould be found on new improvements. A French writer†, who ſpeaks from experience, as well as the Marquis of Turbilly, preſcribes this courſe;—1, dig, at the expence of 20 liv. per arpent, of 46,000 feet, in winter, and ſummer-fallow, with many ploughings and harrowings, for—2, wheat;—3, oats;—4, fallow;—5,

* At preſent (Auguſt 1793) we know what the blood-hound government of France have done for agriculture: COMPLETELY *ruined* all that was good in it.

† *Experiences and Obſervations ſur les Défrichemens.* Par Monſ. le Doſſeur. *Lamballe.* 1775. 4to. P. 26, 28, 33. This gentleman tells us, that paring and burning ſhould be practiſed only on a calcareous ſoil, for in Bretagne the peaſants get but two or three crops of corn by it; and if more, much dung is requiſite. But if they can have two crops of corn, cannot they have one crop of turnips? Cannot they have GRASS, which ſeems never to be in his contemplation, though almoſt the only thing that ought to be in view. De Serres knew better; he recommends paring and burning, deſcribes the operation, and anſwers the objection of thoſe who urged a ſhort continuance of the profit, by ſhewing, that ſuch caſes proceed from improper management, and do not occur, if the laws of good tillage be purſued, *au cultiver & au repoſer.* Le Théatre D'Agriculture, par D'Olivier de Serres. 4to. 1629. P. 64 to 70.

wheat;

wheat;—6, oats, &c. &c. This gentleman, who tells us he broke up and *improved* 450 arpents, has not explained how *real* improvement is to be made without ſheep or cattle. Where is his winter food in this prepoſterous courſe? If theſe 450 arpents be really improved, they have coſt him five times more than they are worth; but I ſuſpect they are—improved *a la Turbilly*. It is mere romance to think of improving waſtes profitably without a great flock of ſheep. The ideas of French improvers ſeem rooted in a contrary ſpirit; to the preſent moment, there is no other plan than the old one of corn. A publication of the year 1791, *Memoire ſur l'Utilité du Défrichement des Terres de Caſtelnau-de-Medoc*, ſpeaks of the ſame methods—*déraciner—labourer—herſer—enſemencer—froment—ſeigle*, p. 5. The ſame views in every part of the kingdom; but when you inquire for cattle, you have, on ſome hundreds of acres, ſeven cows, three mares, four oxen, and no ſheep! (P. 4.)

As the ſubject is one of the moſt eſſential in French agriculture, I will very briefly ſketch the right principles on which alone waſte countries can be improved to profit. The rapid view which is practicable for a traveller to take, will allow no more than an outline; fully to explain the proceſs would demand a diſtinct treatiſe.——1, The buildings, upon which ſo much money is generally ſo uſeleſsly employed, ſhould, in a private undertaking, be adapted to that ſized farm, which lets in the country moſt advantageouſly; but, in a public undertaking, they ſhould be adapted to that ſized farm which is moſt favourable to a beneficial cultivation of the ſoil; in the latter caſe from 400 to 600 acres. This attention to the ſcale of the buildings flows from the plan of the improvement, which is that of letting the land in farms, as faſt as it is well improved, and brought into the cultivation in which it ought afterwards to remain. But whatever the ſize of the future farms may be, the ſtricteſt attention ought to be had to keeping this part of the expenditure as low as poſſible; it contributes little to the productiveneſs of the land, except what ariſes from convenient offices for cattle and ſheep.—2, The next object is to buy a large flock of ſheep, to feed on the lands in their waſte ſtate, that are to be improved; five hundred would be a proper number to begin with. Theſe ſheep ſhould be, as nearly as poſſible, ſuch as the South Downs of England; of the French breeds, the moſt profitable, and the beſt to procure, would be thoſe of Rouſſillon. It is of more conſequence to have a breed not too large, and well clothed with a ſhort firm fleece, than larger or more expenſive breeds.—3, The firſt ſummer ſhould be entirely employed in paring and burning, and cultivating, at leaſt, 100 acres of turnips and rape, for the winter ſupport of the ſheep and plough-oxen. After the turnip ſeaſon is paſt, the paring and burning to continue for rye, artificial graſſes to be ſown with the rye.—4, Begin, as early in the ſpring as poſſible, to pare and burn freſh waſte, firſt for a crop of potatoes, on fifteen

or twenty acres, and then for 200 acres of turnips. The turnip land of laſt year to be ſown with oats, on three ploughings; and with the oats, over fifty acres, clover-ſeed to be ſown. After the turnip ſeaſon is paſt, continue paring and burning for rye, as before. The labourers employed in the ſummer on paring and burning, to work in the winter on ditching, for forming incloſures; the banks to be planted with white thorn, and willows for making hurdles.—This is ſufficient to ſtate the leading principles of the undertaking. Oeconomy in the execution demands that the labourers employed ſhould have work conſtantly; in ſummer paring and burning, and managing the hay and corn harveſt; and in winter ditching; quarrying, if there be lime-ſtone on the premiſes, for burning lime for manure; and, if not, digging and filling marl, or chalk, or other manures which may be found under the ſurface. In like manner the number of maſons and carpenters ſhould be ſo regulated, in proportion to the works, ſo as to find conſtant employment through the building ſeaſon.

The courſes of crops will explain the whole buſineſs of tillage. On the land pared and burnt, and planted with potatoes in the ſpring, the following rotation: 1, potatoes;—2, oats:—3, turnips:—4, oats, and graſs ſeeds for laying down.

On the land pared and burnt, and ſown with turnips at midſummer:—1, turnips;—2, oats;—3, turnips;—4, oats, or barley, and graſs ſeeds for laying down.

On the land pared and burnt, and ſown with rye in autumn:—1, rye;—2, turnips;—3, oats;—4, turnips;—5, oats, and graſs ſeeds for laying down.

All the turnips to be fed on the land with ſheep, by hurdling, except the ſmall quantity that would be wanted for the plough oxen.

All the graſſes to be mown the firſt year for hay, and then paſtured by ſheep, for two, three, four, or more years, according to circumſtances. When they wear out, or betray indications of a want of renewal, they may be broken up with a certainty of yielding grain in plenty; but no two crops of white corn ever to be ſown in ſucceſſion: by white corn is underſtood wheat, rye, barley, and oats.

A very eaſy, and, in ſome caſes, effectual method of improving heaths, is by grubbing up the plants that grow ſpontaneouſly, and ſpreading lime upon the waſte without any tillage, ſowing graſs ſeeds and covering them by the ſheep-fold: it is ſurpriſing what a change is thus effected at the ſmalleſt poſſible expence; ſoils, apparently miſerable, have been made at once worth the rent of 20s. per acre.

It is not poſſible to give more than an outline in ſuch a ſketch as this; variations, ariſing from a difference of ſoil, will occur; which, though not conſiderable, muſt be marked with care, or uſeleſs expences will often be incurred. The method juſt hinted at is particularly applicable upon thoſe waſtes, which

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are, in culture, ſteril, from abounding with the vitriolic acid; the caſe of many in Bretagne; where pudding ſtone is found in ſome diſtricts at ſix to eight inches under the ſurface: cultivation on ſuch by the plough, may be ſo tedious and expenſive, that the mere paring and burning, and application of a calcareous manure, lime or marl, with graſs ſeeds, and fold, as above-mentioned, would be much the beſt improvement, as I have myſelf experienced, in a country more vitriolic and ſteril than any waſtes I ſaw in Bretagne.

The progreſs of the flock of ſheep will, by its procreation, ſhew what may be the given progreſs of ſuch an improvement, providing turnips, in the proportion of one acre to five ſheep, which will allow enough for oxen and other cattle, and and ſuppoſing the loſſes upon a flock to be 5 per cent.

If the breed of ſheep be good, all the ewes ſhould be ſaved, for increaſing ſtock, and the wethers ſhould be kept until two years old and paſt, ſold fat at from two to three years. On ſuch a plan, a flock increaſes rapidly, perhaps more ſo than the capital employed. But the conductor of ſuch an undertaking would of courſe proportion his flock to his money, ſo that all the works might be conſtantly going on, without ſtop or break; to effect which, would demand no inconſiderable foreſight and knowledge of the buſineſs.

By the plan of letting the lands, as ſoon as brought into complete cultivation, the capital employed in the undertaking would be exerted to the utmoſt force and advantage, in ſpreading the improvement over the greateſt poſſible breadth of waſte. If the lands were all to be kept accumulating into one farm, it would grow too vaſt to be managed with profit; but, by letting, the principal attention, exertion, and force of capital would be always employed where moſt wanted and moſt uſeful; and it is hardly to be believed, by thoſe not accuſtomed to ſuch obſervations and inquiries, how great a tract of country might, in twenty years, be improved.

Planting colonies of foreigners upon waſtes, has been a favourite method purſued in ſeveral countries, particularly in Spain and in Ruſſia; ſuch ſpeculations have rarely anſwered the immenſe expences beſtowed upon them. The lands are uſually but half improved; the huſbandry introduced is almoſt ſure to be bad; and the jealouſy, with which the new ſettlers are viewed by the natives, prevents their practice from ever being imitated. Such a mode of improvement, as is here ſketched, would be infinitely more beneficial; what was done would be well done; all would be executed by natives; for the only foreigner employed in the buſineſs ſhould be the director. There would be no probability of the improvement not being durable and ſpreading widely; for the lands not being let until the cultivation was completely in train, the profit as well as the method would be ſeen by every one.

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By executing the improvement of a waſte on theſe principles, ten thouſand pounds would have an infinitely greater effect than an hundred thouſand expended in any other method: in the German colonies, eſtabliſhed in the Siera Morena in Spain, and in various others in different parts of Europe, much attention has been paid to the eſtabliſhing of little farms only. I do not want to view ſuch, to know that the improvement is beggarly, and the huſbandry contemptible: no waſte can be really improved, and to the beſt advantage, but by means of the ſheep, powerfully applied; all other methods are coſtly, ſlow, and of weak effect; but no little farmer can have a flock ſufficient. This paltry idea of eſtabliſhing nothing but little farms, is the reſult of moſt impolitical ideas reſpecting population, which ought never to be the object of a moment's attention. If it exiſt idle, or beyond the proportion of employment, it is the ſource of poverty and wretchedneſs; it is valuable only in proportion to regular and active employment; find that employment, and you will have an induſtrious active population in ſpite of every obſtacle. But ſmall farms and little diviſible properties, increaſing the people, without increaſing employment, has no other tendency than to propagate idle beggars, and to diſſeminate modes of huſbandry, calculated to exhauſt the land, and keep its cultivators in miſery. This is not theory but fact, of which almoſt every province, in France, abounds with glaring inſtances. But of this more in another chapter.

There is another ſort of waſte land, that abounds alſo very much in France, I mean marſhes: it is aſſerted, that there are from 1,200,000 to 1,500,000 * arpents of them in France. The improvement of theſe is vaſtly more expenſive and more difficult than that of *landes*, heaths, moors, &c. The drains demanded for them require a conſiderable capital. Theſe ought to be converted to meadow and rich paſture, by means of draining. Where they admit it, the cheapeſt improvement of ſuch is by irrigation; the general drainage of great marſhes, if not truſted by the aſſemblies of the departments to the conduct of ſome one able director, ſhould be done by commiſſion; by conſtituting a company, as in England, and paying the expence, by a tax on the lands drained. If the rage for ſmall farms continue, theſe marſhes, in proportion as the ſoil is boggy, will admit of being divided into ſmall portions, that is, of 30 to 60 arpents, but it ſhould be under an abſolute prohibition of the plough. The bog, which I ſaw in paſſing from Auvergnac to Nantes, and which ſeems, from its appearance on the map of Bretagne, to be of a vaſt extent, is highly ſuſceptible of improvement, and every acre of it might be converted into rich meadow.

* *Rapport du Comité d'Agriculture, &c.* 7 Fev. 1790, par M. de Lamerville, deputé de Berri. P. 3. *De la neceſſité d'occuper tous les gros Ouviers*, 1789, par M. Boncerf. P. 3.

CHAP.

CHAP. XV.

Of Coals, in France.

LIMOUSIN.—*Limoges.*—I WAS here aſſured, that a vein of coal has been found at the depth only of 12 yards, which is 17 feet thick; but it is no where uſed, either in houſes or in manufactures; the iron forges are all worked with charcoal. If this is fact, what a want of capital it proves!

FLANDERS.—*Valenciennes.*—There are mines worked here. The manco of 240 lb. ſells for 23*ſ.* 9 den. and the worſt of all at 12½*ſ.*; the largeſt of all at 35*ſ.* and 36*ſ.*; they are more abundant at Mons. Wood is burnt here at the inns, and all the better private houſes, but the poor burn coal: the mines, they ſay, are 700 feet deep; the coal is drawn up by four horſes; they have four ſteam engines.

Lille.—Coals, the raziere, 3 liv.

Dunkirk.—Engliſh, the raziere of 300 lb. 8 liv. Theſe are burnt in every houſe in the town, and are one-third cheaper than wood: there is a canal to the coal pits at Valenciennes, but the diſtance too great, and locks too numerous and expenſive to rival the import from England.

Bethune.—Pits within a few leagues. Price here 44*ſ.* to 46*ſ.* the raziere, which, I have been told, holds about nine Engliſh pecks; but the raziere of St. Omers holds 195 lb. of wheat.

Rouen.—The boiſſeau of 22 pots, each 2 bottles, 3 liv. 10*ſ.*

Iſigny.—A mine newly opened, at which the coals ſell at 14*ſ.* 1 liard, the boiſſeau, of 90 lb. to 100 lb.

Carentan.—Coals of the country only for blackſmiths, 14*ſ.* the boiſſeau of 80 lb. dry at the mine, but wet are 90 lb. or 100 lb.: they are not half ſo good as what is brought from England.

Cherbourg.—In the manufacture of blown plate glaſs, a great quantity of Newcaſtle coal is burnt; 13 keel, or 103 chaldrons, coſt, all Engliſh charges included, about 7500 liv.; the French duty 3600 liv.; and port charges, &c. make it in all about 11,000 liv. which being near 5l. a chaldron, ſeems an enormous price, at which to buy fuel for a manufacture. The coals of the Cotentin, they ſay here, are good for nothing.

Granville.—The blackſmiths burn *Guernſey* coals.

Auray.—Engliſh coals 3 liv. the boiſſeau of about three Engliſh pecks, which the blackſmiths uſe for particular purpoſes.

Nantes.

Nantes.—French coal 300 liv. the 21 barriques, each double wine meaſure, or 480 pints, but one barrique of Engliſh is worth two of it.

A coal mine worked by a Monſ. Jarry, at Langien, five leagues from Nantes. Another at Montrelais, near Ingrande; and at St. George, near Saumur. The French coals uſed in the foundry, near this city, come to 34 liv. the 2000 lb.

La Fleche.—Price 16*ſ.* the boiſſeau, of 30 lb. wheat; they are from Angers.

Rouen.—Monſ. Scannegatty works the common borer, with a windlaſs, in boring deep for coals, for which purpoſe he has been employed by government: he ſhewed me the model of one made at Paris, 300 feet long; with this he has bored 160 feet, much of it in hard rock, without accident; his objection to ſhafts, is the water riſing; he would uſe ſhafts until he comes to water, but after that muſt bore. He ſays, the badneſs of the coal, in the mine near Cherbourg, ariſes merely from being ill worked; they have got at preſent only to the ſurface coal, inſtead of piercing through the bed. M. Scannegatty aſſerts, the conſumption of Engliſh coals, in the generality of Rouen, to be two millions a year. The price is 40 liv. for 6½ barriques, each barrique 150 lb. or 975 lb. or about 80 liv. a ton.

Elbœuf.—Conſumes 200,000 liv. a year in Engliſh coals.

Nangis.—Brought from Berri. Price 4 liv. the Engliſh buſhel.

LORRAINE.—*Pont-à-Mouſſon.*—From Sarbruck 18 liv. the 1000 lb. At the mine 5 liv.

ALSACE.—*Befort.*—Price at the mine, four leagues from this place, 12*ſ.* the 100 lb.; here 16*ſ.* They are uſed only by blackſmiths.

BOURGOGNE.—*Chagny.*—Coals from Mont Cenis; at the mine 6 liv. the the wine *queu*; here 10 liv. Nobody burns coals in their houſes.

Mont Cenis.—At the mine a *ban* 10*ſ.* It is remarkable, that at the inn here, and at every houſe, except thoſe of the common workman, wood is burnt; which ſhews the abſurd prejudices of the French, in favour of that fuel, in ſpite of price.

BOURBONNOIS.—*Moulins.*—Price 30*ſ.* the *bachole*, of which 4 make a poinçon.

AUVERGNE.—*Clermont.*—Price 10 liv. the *raze* of 2 feet 2 inches, by 1 foot 6 inches, and nine inches deep. Uſed only in ſtoves, or by blackſmiths; they are from Brioude.

Brioude.—The *raze*, of 150 lb. 16*ſ.*; but the beſt is 20*ſ.*

Fix.—The *carton*, of 50 lb. 14*ſ.*

VIVARAIS.—*Coſteros.*—The quintal 50*ſ.*

Thuytz.—The blackſmiths here burn charcoal, yet are near the coal mine, which I paſſed in the vale; it is a ſtone coal; the price 7*ſ.* the 100 lb.

DAUPHINE.

DAUPHINE.—*Montélimart.*—Large coal 1 liv. 15*ſ.* the 155 lb.; ſmall, for blackſmiths and manufacturers, 22*ſ.* the 155 lb. The mine is at Givors, near Vienne, at five leagues from Lyon; there is a canal to Vienne, but with a toll. Coak, made of coal, for melting, 5*ſ.* the quintal.

Pierre-Latte.—Coals 3 liv. the meaſure of about 6 pecks; none uſed but by blackſmiths.

PROVENCE.—*Tour d'Aigues.*—Price 40*ſ.* the quintal. 16*ſ.* or 18*ſ.* at Aix. At the mine, three leagues from Aix, 5*ſ.*

Marſeille.—Coals from Givors, in Dauphiné, near Lyon, 33*ſ.* for 210 lb. of Faveau, in Provence, 40*ſ.* to 42*ſ.* for 300 lb. Of Valdonne, 41*ſ.* ditto: uſed in the ſoap fabric and ſugar refineries. Of England 42*ſ.* to 45*ſ.* on board the ſhip, for 210 lb.; on ſhore 60*ſ.* for 195 lb.

LYONNOIS.—*Lyon.*—Coals 30*ſ.* the 130 lb. The mines are ſix leagues off; price there 24*ſ.* for 160 lb.: there is a canal from the pits to the Rhone.

The want of vigour in working the coal-mines in France, is to be attributed to two cauſes; 1, the price of wood has not riſen ſufficiently to force this branch of induſtry; and, 2, the want of capital, which affects every thing in that kingdom, prevents exertions being made with the neceſſary animation. But theſe evils will correct themſelves; the gradual riſe in the price of wood, which, ſo far from being an evil, as it is univerſally thought in France, is only a proof of national improvement, will by degrees force the conſumption of coals; and when theſe are in the neceſſary demand, they will be produced in greater quantities.

CHAP. XVI.

Woods, Foreſts, Timber, and Planting, in France.

Pyrennées—A Conſiderable proportion of theſe mountains is under wood, and a much larger has been; for the deſtruction of them making every day, is not credible to thoſe who have not viewed them. Paſſed frequently through ſeveral woods near Bagnere de Luchon, in which the wood-men were at work, riving and cutting beech ſtaves for caſks; I was ſhocked to ſee the deſtruction they made, which could not have been more waſteful or laviſh if they had been in the midſt of an American foreſt. Large and beautiful beeches are cut off, 3, 4, and 5 feet high, and thoſe noble ſtumps left to rot; whole trees, which, on trial, would not rive well, left for years, and now rotting untouched; and in working thoſe we ſaw, nothing but clean cuts taken, 3 or 4 feet perhaps in 50, and the reſt left on the ground in the ſame confuſion in which it fell. The deſtruction ſo general in this noble foreſt of Lartigues, that it is almoſt deſtroyed; there is no young growth for ſucceſſion; and in ten or twelve years it will be a bare mountain, with a few miſerable ſhrubs browzed by goats and other cattle. In ſome tracts which I paſſed, at a few leagues diſtance, towards the walks of the Spaniſh flocks, there are ſome foreſts deſtroyed in ſuch a ſhameful manner, that to a perſon, from a country where wood is of any value, muſt appear incredible; ſeveral ſcores of acres ſo utterly deſtroyed that not a tree remains ſtanding; yet the whole a foreſt of ſtumps, 3, 4, and 6 feet high, melancholy and ſhocking to behold. The torrents every where roll down as much wood as ſtone, and preſent a ſpectacle of ſimilar ruin; the roads are formed of fragments of trees, and are guarded againſt the precipices by whole ones laid and left to rot; you no where paſs many yards without thruſting your cane into bodies, rotten, or rotting; all is ruin, waſte, and deſolation; and the very appearance one would ſuppoſe a wood to carry, in which a foreign enemy had, with the moſt wanton malice, deſtroyed every thing.

Theſe woods are commons belonging to the communities of the pariſhes, upon which every inhabitant aſſumes the right, and practiſes the rage of depredation. So careleſs of the intereſts of poſterity, or rather ſo inflamed againſt every idea but that of the preſent moment, that, in the general opinion, there will be an undoubted ſcarcity in thirty years, amidſt what have been, and yet are, in ſome diſtricts, very noble foreſts. The communities ſometimes ſell woods; an inſtance occurred lately, that of Bagnere de Luchon ſold a *fall* for 14,000 liv. but worth, it is ſaid, 35,000 liv. in which ſome pilfering might take place; this

was

was to pay their ſhare of the new bathing houſe. Is it poſſible that ſuch a recital can be given of a country that imports pot-aſh from the diſtance of 2000 miles!

The number of ſaw mills, in theſe mountains, turned by torrents, is conſiderable; they are of a very cheap and ſimple conſtruction, but exceedingly incomplete, having no mechanical contrivance for bringing the tree to the ſaw, a man conſtantly doing it by preſſing with his foot on the cogged wheel.

LANGUEDOC.—*Lunel.*—At the Palais Royal inn there is one, among many ſtables, which is covered by twelve large beams, 16 or 18 inches ſquare, and 45 feet long. The whole country is at preſent *quaſi* ſuch trees as theſe, denuded.

GASCOGNE.—*St. Palais to Anſpan.*—An oak here ſells for 30 liv. which would, in England, ſell for 45s. to 50s.

ISLE OF FRANCE.—*Lieurſaint.*—In the royal foreſt of Senars, the oak copſes are cut every twenty years, and ſell at 600 liv. the arpent (the cord of wood ſelling, at Paris, at 50 liv.), which makes 30 liv. a year, but from this carriage is to be deducted, and there will remain about a louis d'or.

Liancourt.—Woods here form a conſiderable portion of the whole country. They are in general cut at twelve years growth, but in ſome parts at fifteen and twenty; they ſell at twelve years from 100 liv. to 200 liv. the arpent (about 1¼ acre): at 150 liv. it may be called 12 liv. per annum; as they are on the pooreſt land this is much more conſiderable than the ſame land would let for, but it is much inferior to what the *product* of the ſame lands would be, under a tolerable ſyſtem of cultivation. The quantity of foreſt ſpread over the country, in almoſt every direction, makes timber cheap: oak, aſh, and elm ſell at 30*ſ.* the cubical foot, a larger foot than that of England. The pooreſt family 60 liv. a year in wood.

Clermont.—Near this place, in the foreſt of la Neuville eu Haye, belonging to the king, there is an undertaking now (1787) going forward, which does honour to government: it is a plantation of oak for timber. The land is incloſed with pales, wired to the rails, in the French manner, inſtead of nailing: the land is all trenched 2 feet deep, for which the workmen are paid according to the ſoil, 20*ſ.* to 40*ſ.* the ſquare perch of 22 feet, and they earn about 22*ſ.* a day: as it was an old foreſt where they work, there are many roots, for extracting which they are allowed ſomething more. The ſoil in general is a good light loam, except in ſome parts, on a pure white ſand. The whole expence, by contract (fencing excepted), digging, planting, filling vacancies, and hoeing twice a year, for five years, is 300 liv. the arpent, of about 1¼ acre. The fence is 3 liv. the toiſe, or about 1s. 2d. a yard, running meaſure: 60 arpents are done, and they are ſtill at work. I viewed the oaks with pleaſure; they are

moſt of them remarkably fine; they thrive well, and are very healthy; ſome are five years old from the ſeed, and others five years old from transplanting; the plants then three years old: theſe are the largeſt, but not more ſo than three years difference in age ought to make them: they are in rows at about 4 feet. There is alſo a ſmall incloſure of cheſnuts and Bourdeaux pines (*pinus maritimus*), ſown four years paſt, which are now five feet high, which is a vaſt growth. The only enemy which the oaks have hitherto met with, is the cock-chaffer grub, which has killed ſome.

Dugny.—Monſ. Cretté de Paluel has planted many thouſands of the poplar, with ſucceſs, and has cut them when only twelve years old, large enough for building. Several of his farming offices, very well and ſubſtantially built, are of this wood, erected twelve years ago: and the timbers are now as ſound as at the time of uſing; but he has found, that when expoſed to the weather, it does not laſt.

NORMANDIE.—*Bon*.—The ſeat of the Marquis de Turgot, elder brother of the celebrated controleur-general. A large plantation of foreign trees, in which nothing is ſo remarkable as the ſuperiority of the larch to every other plant.

Falaiſe.—Woods, at twelve years growth, pay 8 to 10 louis an acre, or 22 liv. a year.

Harcourt.—The larch and Weymouth pine, of eighteen years growth, have thriven beyond any thing. I meaſured a larch, of that age, 3 feet 6 inches in circumference, at 5 feet from the ground; and a Weymouth 2 inches larger. Woods throughout Normandie, on an average, pay 20 liv. the Norman acre (10s. 6d. per Engliſh acre).

La Roche-Guyon.—There is nothing in this country that pays better than plantations of willows for yielding vine props. The Dutcheſs D'Enville has a piece of 3½ arpents, which yields 400 liv. a year, by being cut every third year. New ones are ſet as the old wear out; the heads are cropped at three years old, and the great product is from nine to eighteen years of age. Lombardy poplars, planted by the preſent Dutcheſs, of twenty-four years growth, are worth 11 liv. each, ſtanding only 6 feet aſunder: it would be uſeleſs to apply calculation to this fact, to ſee what the acreable produce would be; for if a man had a few acres to ſell every year, he would be able to get no more than the price of a very bad fire wood, not ſaleable till after every better ſort in a country was conſumed. Could a demand be found, the profit would be enormous. They grow on the level of the Seine. They are cut into boards 10 inches wide, which ſell at 2*ſ*. the foot.

ISLE OF FRANCE.—*Columiers*.—Woods, at nine years growth, worth 180 liv. the arpent (9l. the Engliſh acre).

CHAMPAGNE.

CHAMPAGNE.—*Mareuil.*—At twenty years growth, worth 300 liv. the arpent (10l. 10s. per Engliſh acre), at 1½ or 2 leagues from the Marne, but if further, 4 liv. per arpent per annum deduction.

Epernay.—It is poſſible to go from hence to Alſace, with no great interruption, through foreſt, all the way.

LORRAINE.—*Braban.*—Woods are cut, at twenty years growth, and the produce 12 liv. per arpent per annum (18s. 4d. per Engliſh acre).

Metz.—Woods cut, at twenty to twenty-five years growth, 120 liv. the journal.

Luneville.—Woods cut, at twenty-five or thirty years growth, from 40 liv. to 100 liv. net the journal, 1974 Engliſh yards.

FRANCHE COMTE.—*Beſançon.*—Cut, at twenty-five years growth, and yields 150 liv. to 200 liv. the cutting, or 8 liv. per annum per arpent; near the forges of the city, to 300 liv. (10l. 10s. per Engliſh acre).

Orchamps.—A little auberge conſumes from twenty to thirty waggon loads, each 8 liv. in a year, at one fire.

BOURGOGNE.—*Auxonne.*—Paſs a wood felled and corded, 12 cords per Engliſh acre; the cord 8 feet by 4 feet, and two high; and the price 8 liv. A little aubergiſte conſumes to the amount of 200 liv. a year, one fire. It would coſt a poor family 80 liv. a year, if they bought fairly all they burn. Calculate

Four millions of families, at one cord, and at ten per acre,	400,000 acres.
Cut, at twenty years,	8,000,000
At two cords,	16,000,000
At three ditto	24,000,000

Dijon.—Conſumption of one fire, 5 or 6 *mœul* for the poor, the *mœul* 4 feet cubical. Of the whole town, of 24,000 people, 40,000 *mœul.* Beſt oak timber, 3 liv. the cubical foot. Inferior to 20*ſ.* Elm dearer than oak; uſed for wheel carriages only. Pine one-third cheaper.

BOURBONNOIS.—*Moulins.*—Copſes cut, at fifteen years growth, and ſell at 50 liv. the arpent, of 48,384 feet; no expence except cutting. Oak timber, 18*ſ.* to 20*ſ.* the cubical foot. Planks of 9, 10, and 11 inches wide, 45 liv. to 60 liv. the hundred toiſe (6 feet), ¼ inch thick. Laths 14*ſ.* the faggot, of 52, and 5 feet long.

AUVERGNE.—*Riom.*—One fire, and a very poor one, 80 liv. if bought.

Clermont.—A poor family, to ſteal none, muſt have ten cord, or 60 liv. and charcoal to the amount of 15 liv.; but, in general, they ſteal, or collect as well as they can.

VIVARAIS.—*Pradelles to Thuytz.*—Great woods of pines in theſe mountains, with ſaw-mills for cutting them.

DAUPHINE.—*Loriol.*—Oak 12*ſ.* the 100 lb.

PROVENCE.

PROVENCE.—*Tour d'Aigues.*—Wood thrives greatly in this country. The Preſident has a great many oaks, and ſome of a vaſt ſize; alſo black poplar and beech. One by the farm-houſe, 13 feet 11 inches, French, in circumference, at 5 feet from the ground, and 80 feet high. Here alſo are evergreen oaks, 500 years old. He has *platanus* of a vaſt growth, in twenty-five years, and the *morus papyrifera*, of a great ſize. The pooreſt family in this country conſumes 60 quintals of wood a year, ſtolen, or bought; generally the former. A bourgeoiſe, that has ſoup every day at one fire, 150 quintals.

Fréjus to Eſtrelles.—The pines, &c. in theſe mountains, hacked, plundered, and deſtroyed, almoſt as wantonly as in the Pyrennees: and ſpots every where burnt by the ſhepherds, though prohibited, in order to produce herbage for their flocks.

Price of Wood and Charcoal, &c.

Price per Paris load of 140 ſt. liv.

1787.—LIMOUSIN.—*Limoges.*—Charcoal 30*ſ.* the quintal.

ANGOUMOIS.—*Verteuil.*—Cord of wood 10 liv. near a navigation; 3 liv. at a diſtance.

ISLE OF FRANCE.—*Montgeron.*—Cord 44 liv.

FLANDERS.—*Lille.*—Ditto 60 liv.

Dunkirk.—Ditto 60 liv. the load of 100 meaſures.

1788.—NORMANDY.—*Caen.*—Charcoal 20*ſ.* the raziere, of 40 lb. of wheat.

Cord of beech wood, 6 feet long, 4 broad, and 4 high, 24 liv. - 35

Other woods 18 liv. to 20 liv. - - - - 27

Faggots of 3½ feet around, and 5 feet long, with large wood in them, 60 liv. to 80 liv. per hundred.

BRETAGNE.—*Rennes.*—Cord 8 feet long, 4 high, and 2½ broad, 15 liv. to 17 liv. - - - - - - 28

Landernau.—Cord 8 feet by 4 feet, and 2½ high, 24 liv. - 42

L'Orient.—Cord 8 feet by four feet, and 2½ high, 20 liv. - 35

Auray.—Charcoal 3 liv. the barrique. Iron 5*ſ.* the lb. A horſe-ſhoe 12*ſ.*

Auvergnac.—Cord of wood, 28 liv. - - - 49

Nantes.—Ditto 30 liv. to 36 liv. - - - - 57

Swediſh iron 280 liv. the thouſand pound. Hemp 50 liv. the hundred ditto.

Ancenis.—Cord 24 liv. - - - - - 42

ANJOU.—*Angers.*—Cord 8 feet long, 4 feet high, and 4 broad: a double cord, 40 liv. - - - - - - 42

Faggots 18 liv. to 24 liv. the hundred.

La Fleche.—Cord 16 liv to 21 liv. - - - - 39

Charcoal 70 liv. to 80 liv. the 42 barriques.

MAINE.

	Price per Paris load of 140 ft.
	liv.
MAINE.—*Gueſcelard.*—The cord, 6 feet by 3½ feet, and 3½ high, of pine, 6 liv.	12
Ditto of oak, 14 liv.	26
NORMANDY.—*Gacé.*—Charcoal 52*ſ.* the barrique. Iron 23 liv. the hundred pound, or 1 liard leſs than 5*ſ.* the lb. They charge 8*ſ.* the lb. for heavy work, and 32*ſ.* for ſhoeing a horſe.	
Elbœuf.—The cord 8 feet by 4 feet, and 2½ high, 24 liv.	42
La Roche-Guyon.—Cord 8 feet by 4 feet, and 4 high, is 30 liv.	32
ISLE OF FRANCE.—*Nangis.*—Cord 12 feet by 4 feet, and 4 high: price 24 liv. to 28 liv.	18
CHAMPAGNE.—*Mareuil.*—Cord 8 feet long, 5 feet high, and 3 feet 7 inches broad, ſells, oak 36 liv.	31
White woods 24 liv.	21
Charcoal 50*ſ.* the tonneaux, of 200 pints of Paris (quarts).	
Epernay.—The cord 40 liv.	40
St. Meneboud.—Cord 8 feet by 4 feet, and 3½ inches: 18 liv. 10*ſ.*; in the town 19 liv.; but twenty-five years ago it was 7 liv. 10 feet.	24
LORRAINE.—*Braban.*—Cord 8 feet by 4 feet, and 4 high, is 19 liv.	20
Mar-le-Tour.—Cord 8 feet by 4 feet, and 4 high, is 16 liv.; the beſt 21 liv.	20
Metz.—Charcoal 30*ſ.* the ſack: cord 8 feet by 4 feet, and 4 high; is 32 liv.: of beach and hornbeam,	35
Of oak, 22 liv.	24
Pont-à-Mouſſon.—Cord 8 feet by 4 feet, and 4 high: in town 16 liv. 10*ſ.* In the foreſt 12 liv.	18
Nancy.—Cord floated oak 20 liv.; other ſorts 23 liv.	28
Not floated oak 26 liv.; beech and hornbeam 34 liv.	37
Luneville.—Cord 8 feet by 4 feet, and 4 high: now 24 liv. to 28 liv.	
Beech,	28
Oak 22 liv. to 23 liv.	24
ALSACE.—*Straſbourg.*—Cord 6 feet by 6 feet, and 3 high; price 27 liv.	38
Scheleſtat.—Cord 6 feet by 6 feet, and 3 high; price 24 liv.*	31
Iſle.—Cord 8 feet by 4 feet, and 4 high; price 12 liv. yet many iron forges,	14
FRANCHE COMTE.—*Beſançon.*—Cord 8 feet by 4 feet, and 4 high, floated, 16 liv. 10*ſ.*	18
Not floated, 25 liv.	27

* Some ſold 6 feet by 6 feet, and 6 high.

Orchamps.

Price per Paris load of 140 ft.

Orchamps.—Iron; all uſed by blackſmiths; is of the country; 5*ſ.* the lb. Charcoal only uſed in making it, at 40 liv. the load of four horſes, about 50 or 60 buſhels; there are forges ſpread over the whole country: one within three leagues, which, with its furnace, uſes 50 loads of wood per diem. Shoeing a horſe 40*ſ.* liv.

Dijon.—Cord 7½ feet by 4 feet, and 4½ high, at 26 liv. the mœul, a cube of 4 feet, and the price 13 liv. - - - - 26

Price of carriage 20*ſ.* per thouſand pound for each league.

Chagny.—Mœul, cube of 4 feet, 13 liv. to 16 liv. - - 31

Iron: tier of wheels 7*ſ.* the lb. and 8*ſ.* for the nails. Price of iron 5*ſ.* 1 liard.

Moulins.—Cord, 2 to a coche, 30 liv. Charcoal 3*ſ.* to 3½*ſ.* the Engliſh peck. Iron 1 liard under 5*ſ.* per lb. Caſt ditto 3*ſ.*

Clermont.—Cord 3 feet 11 inches, by 7 feet 4 inches circumference; price 6 liv. about one-fourth of a Paris cord, - - - 24

Charcoal 2*ſ.* the lb.

Fix.—Iron 5½*ſ.* the lb.

Montélimart. Charcoal 5*ſ.* the hundred pound.

Pierre Latte.—Wood 20*ſ.* the hundred pound.

Avignon.—Wood 18*ſ.* to 20*ſ.* the hundred pound. Charcoal 3 liv. the hundred pound.

Tour d'Aigues.—Charcoal 45*ſ.* the hundred pound.

Marſeille.—Wood 3 liv. 17*ſ.* for 300 lb. and 8*ſ.* carriage from the ſhip. In winter the ſame, 5 liv. Charcoal, by ſhipping, 50*ſ.* the quintal, 120 lb.; by land 70*ſ.*

Lyon.—Oak, the mœul, 3 feet 8 inches ſquare, 23 liv.

General average, - - - - 30

To theſe data may be here added, that the woods and foreſts of the kingdom amount to 19,850,515 acres, and that the average annual produce may be reckoned 14s. an acre. It here appears, that the average price per cord, of 140 cubical feet, is 30 liv.

The price of wood has riſen conſiderably in France.—Price of the lignier, equal to two Paris voies, at Bourg, in Breſſe.

In 1688,	3 liv.	0*ſ.*
1718,	3	12
1748,	7	10
1778,	9	0
1789,	21	0*

* *Obſervations ſur l'Agriculture*, par Ma. Varenne de Fenille. 8vo. p. 141.

The

The ſcarcity of wood in France, as marked in this riſe of price, has occupied at leaſt an hundred pens during the laſt ten years: almoſt all the cahiers complain heavily of it, and in that of the clergy of Meaux, they call it a real calamity. There is hardly a ſociety of agriculture, in the kingdom, that has not offered premiums for memoirs that ſhould explain the cauſes of ſuch an alarming want, and point out the beſt means of remedying it. The opinion is univerſal; I have met but one mind upon the topic, which, conſidering the talents for political œconomy, ſurpriſed me a good deal; for I muſt declare myſelf of a directly contrary opinion, and venture to aſſert, that the price of wood is too low in France; that it has not riſen ſo rapidly as it ought to have done; and that all ideas of encouraging plantations, to prevent a further riſe, are ignorant and miſchievous, and founded in a total miſconception of the ſubject, for want of combining thoſe circumſtances which bear upon the queſtion. The rent of arable land, in France, calculated ſeparately, and rejecting the parts left waſte, and in neglect, is 15s. 7d. an acre; but the rent of woods is only 12s. How then in common ſenſe can any one complain of a price of wood, which, inſtead of being, at its preſent rate, an injury to the conſumer, is actually a material one to the landed intereſt, who do not make by their woods nearly what they would do by the land if it was grubbed, cleared, and converted to cultivation; and I am ſo well perſuaded of this, that if I was the poſſeſſor of woods, in France, I would moſt aſſuredly grub up every acre that did not grow upon land impracticable to the plough; and I ſhould do this under the firmeſt conviction that my ſpeculation would be profitable. If tillage improves, and freed from tithes and inequality of taxation, no one can doubt but it will improve, the price of wood ought to riſe very conſiderably to prevent landlords, who are well informed, from grubbing up; and let it be conſidered, how vaſt a premium there is to induce them to ſuch a conduct, in all woods where the growth is antient, as forty, fifty, ſixty and a hundred years, at which age many are found in France: the money which the ſale of ſuch would produce, placed at intereſt, and the land converted to tillage, would, in moſt inſtances, treble, and even quadruple, the revenue to be gained from the ſame land, while cropped with wood. Nor is it to be forgotten, that freſh wood-land is generally fertile; poſſeſſing ſtores that, with good management, in reſpect to cropping, may be made to laſt at leaſt twenty years, and in ſome meaſure for ever. We may ſafely determine that the price of wood is not riſen to a fair par with other land products, until it can no longer be the intereſt of the land owner to grub up, and till woods yield as good a revenue as the lands around them, *well cultivated*. It is an undoubted fact, that the price is not yet riſen near to ſuch a par.

There is yet another, and equally unqueſtionable, proof, that the price of wood is much too low in France, and that is the coal mines, found in almoſt

every part of the kingdom, remain, for the greater part, unworked; and that the people burn wood, even in the immediate vicinity of ſuch mines; I was myſelf ſerved with wood at all the inns, at and near the coal mines wrought, of Valenciennes, Mont-Cenis, Lyon, Auvergne, Languedoc, Normandie, Bretagne, Anjou, &c. &c. Is it poſſible to ſuppoſe that this would be the caſe if wood was riſen to its fair par with other commodities?

The concluſion to be drawn, from this ſtate of facts, is ſufficiently clear, that the legiſlature ought not to take any ſteps whatever to encourage the production of wood, but leave it abſolutely free to riſe gradually to that fair price to which demand will carry it; and that the ſocieties and academies of agriculture, compoſed of citizens, that is to ſay, commonly of mere conſumers, unintereſted in the production, ought to ceaſe their unjuſt and impertinent clamour againſt the price of a commodity which is much too cheap. Whenever the price of wood riſes too high, coal mines will every where be effectually worked, and the people in ſight of them moſt aſſuredly will not burn wood.

We have of late had, in England, the ſame vulgar apprehenſion of a want of wood, eſpecially for ſhip building, which has diſgraced France. No wonder timber has been deſtroyed in both kingdoms, while the price was inadequate to the expence of raiſing it. Timber for ſhip building, as well as cord-wood, ſhould at leaſt bear a proportion with corn, meat, butter, wool, &c. which the ground might yield if not occupied in a different manner. The compariſons made are by landlords, who look only at *rent*, but the national intereſts require that *produce* ſhould be conſulted. The argument commonly uſed, by the proprietors of the *landes* of Bourdeaux, againſt cultivating them, is, that they yield at preſent, in pines, a better *rent* in reſin than they would do for cultivation, which is certainly true, if the culture introduced was not good; but what a loſs to the nation to have lands employed to yield, like all the woods of the kingdom, a groſs produce of 16 liv. per acre, inſtead of 40 liv. the produce of arable land? Thoſe who contend for encouragements to planting, becauſe wood is dear, call for the marvellous improvement of converting land, which now yields 40 liv. to the ſtate of yielding 16 liv.! It is juſt the ſame in England; our ſocieties offer premiums for planting, and, as far as thoſe premiums are claimed, or induce men to think planting an improvement, they are attended with the miſchief and abſurdity of preferring a ſmall to a great produce. There are tracts of *impracticable* land, I will not ſay *waſte*, becauſe nine-tenths of our waſte lands, like thoſe of France, are ſuſceptible of cultivation, and therefore it is a public nuiſance to plant them: it may be profitable to the landlord to plant quick growing trees, becauſe he conſiders only *rent*, but ſocieties and the nation ſhould look at *produce*, and conſequently diſcourage all planting.

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The common argument, that is founded on the ſuppoſed neceſſity of a Royal Navy, I ſhould be ſorry to beſtow three words upon; for I hold every idea of a great naval force to be founded on very queſtionable theories. Injurious to other nations in its object, which is that of extending to the moſt diſtant parts of the globe the miſchievous effects of ambition; and all the horrors that attend the ſpirit of conqueſt, when flowing from the worſe ſpirit of foreign commerce. A great navy affords the means of ſpreading what may to Europe be called a domeſtic quarrel to the moſt diſtant regions of the globe, and involving millions in the ruin of wars, who are in juſtice as unconcerned in the diſpute as they are removed by diſtance from the natural theatre of it. And whatever commercial neceſſity, founded upon the worſt principles, may be urged in the ſupport of it, yet the expence is ſo enormous, that no nation, it is now well underſtood, can be formidable both at land and ſea at the ſame time, without making efforts, that throw our own burthens, by means of debts, on our innocent poſterity. Mr. Hume remarks, that the Britiſh fleet, in the height of the war of 1740, coſt the nation a greater expence than that of the whole military eſtabliſhment of the Roman Empire, under Auguſtus, while all, that deſerved to be called the world, was in obedience to his ſceptre; but in the late war, the expence of our fleet amounted to more than the double of what attracted the notice of that agreeable and profound politician, for the naval expence of 1781 aroſe to 8,603,884l.

The ambition of ſtateſmen is ready at all times to found upon a great commerce the neceſſity of a great navy to protect it; and the next ſtep is, the ſuppoſed neceſſity of a great commerce to ſupport the great navy; and very fine arrangements, in political œconomy, have been the conſequence of this miſchievous combination. The deluſive dream of colonies was one branch of this curious policy, which coſt the nation, as Sir John Sinclair has calculated, two hundred and eighty millions! Rather than have incurred ſuch an enormous expence, which our powerful navy abſolutely induced, would it not have been better had the nation been without commerce, without colonies, without a navy? The ſame madneſs has infeſted the cabinet of France; a great navy is there alſo conſidered as eſſential, becauſe they have in St. Domingo a great colony; thus one nuiſance begets another. The preſent century has been the period of naval power. It will ceaſe in the next, and then be conſidered as a ſyſtem founded on the ſpirit of commercial rapine.

But whatever neceſſity there may be for navies, there is none for raiſing oak to build them, which it is infinitely better to buy than to cultivate. There is no proſpect of exhauſting the oak of the north, of Bohemia, Sileſia, Poland, Hungary, and the territories on the Adriatic, for centuries to come; the price will riſe as carriage becomes expenſive, but the ſupply will remain for ages. So long

ago as the beginning of the laſt century, we uſed fir for building, from the ſcarcity of oak*; and notwithſtanding the immenſe conſumption, ſince the countries that ſupply it promiſe to continue that ſupply for five centuries to come.

A veſſel of the firſt rank is ſaid, in France, to demand 60,000 cubical feet of timber†; but a later account makes it much more conſiderable.

		Quantity in a Ship of 116 Guns.		Quantity in a Ship of 74 Guns.
Cubical feet,—	Firſt ſpecies,	77,520	—	47,356
	Second ditto,	39,840	—	16,161
	Third ditto,	5,896	—	12,300
	Fourth ditto,	1,250	—	1,780
	Fifth ditto,	180	—	19
	Plank,	1,995	—	1,497
		126,681	—	79,113
	Fir,	8,449	—	6,338‡

The common price of oak 3 liv. the foot.

I cannot quit the ſubject of woods without remarking, that many of the nobility, in France, have given that attention to the introduction of exotic trees, which would have been a thouſand times better applied to improving the agriculture of their diſtricts: I ſaw many places, the owners of which affected to make a reputation by their evergreens, and other plantations, while living in the midſt of lands, under a cultivation diſgraceful to the kingdom, and the ſame even on their own farms. For one ſol that France will ever be improved by their exotics, it was in their power to have improved her many louis, by very different exertions.

* "And now of late, for want of other timber, we begin to uſe fir for building of houſes." *An Old Thrift newly revived, or the Manner of Planting, &c. by R. C.* 4to. 1612. Black letter. P. 7.

† *Recherches ſur la Houille & Engrais.* Tom. ii. p. 25.

‡ *Encyclopédie Methodique.* 4to. *Marine.* Tom. i. part 1. p. 163.

CHAP.

CHAP. XVII.

On Some Œconomical Practices, in France.

SOME ſcattered minutes, not abſolutely uſeleſs, may, perhaps, better be thrown together than burnt; for ingenious men ſometimes catch hints from a ſlight mention of practices, and apply them to uſes not at firſt thought of.

Building.

LANGUEDOC.—*Montauban to Toulouſe.*—At a brick-kiln, obſerve that they burn only faggots of vine-cuttings.

Bagnere de Luchon.—For building the new bathing-houſe erecting here, by the ſtates of Languedoc, they work the lime (burnt from a fine blue hard ſtone) with gravel inſtead of ſand, of which they have none in the country; and, on examination, I found this gravel to be a true lime-ſtone one, the ſame ſo often met with in Ireland. I could not find that the mortar was the harder or better for this; but, on breaking, rather ſofter than that of ſand. They have here a very effectual method of cementing ſtone; when ſquared blocks break, they join them very eaſily, by applying this cement;—reſin, three-fourths; ſulphur and wax, one-fourth; powdered ſtone, of the ſort to be joined, enough to give it the right conſiſtence when melted. This holds the ſtone ſo firmly together, that the ſolid part will break rather than at the junction.

NORMANDIE.—*Carentan to Coutances.*—They build here the beſt mud houſes I have any where ſeen; very good ones, of three ſtories, are thus raiſed: and conſiderable offices, with large barns. The earth and ſtraw well kneaded together, are ſpread, about four inches thick, on the ground, cut in ſquares of nine inches, and theſe toſſed from a ſhovel to the man on the wall, who builds it; it is finiſhed, layer by layer, and left for drying, as in Ireland; the layers three feet high, and the thickneſs of the walls about two feet; they make them projecting about an inch, which they cut off, layer by layer, perfectly ſmooth; if they had the Engliſh way of white-waſhing, they would look as well as our lath and plaſter houſes, and be vaſtly better and warmer. In good houſes, the doors and windows are in ſtone work.

Bernay.—Mud walls to incloſe gardens, and for fruit, well built and thatched at top.

CHAMPAGNE.—*Epernay.*—Monſ. Paretclaine's new oak floor, which is the common faſhion of France, of ſhort ſcantlings, in a ſort of Moſaic, coſts 40 liv. the ſquare toiſe of 6 French feet, including joiſts and all. They are dove-tailed

along

along the ſides, but nailed at the ends; the nails knocked in, and a plug of wood driven in and plained off.

Lime.

LANGUEDOC.—*Bagnere de Luchon.*—The lime-kilns here, while burning, have a remarkable ſmell of burning ſulphur, from the quantity of that mineral, with which the lime-ſtone is mixed. They build their kilns oval, ſwelling in the middle, with a mouth, not quite at the bottom, where they put in the wood: the upper part is covered with ſtones, in order to keep the heat in. They are 24 hours burning the lime. When burnt, ſtop the mouth cloſe, and leave it to cool, which takes three days; after which, they take the lime out. A kiln holds 400 ſeptiers, which may be ſuppoſed the ſeptier of Paris. They carry, with a pair of oxen, but 2 ſeptiers. Sell it at 40*ſ.* to 45*ſ.* the ſeptier. Such a quantity of lime takes 600 faggots to burn, and a little other wood.

FLANDERS.—*Armentieres to Montcaſſel.*—Heaps are lying in ſome of the fields, ready for ſpreading. It is burnt in the country.

MAINE.—*La Fleche to Le Mans.*—Lime burning; the price 5 liv. the pipe, of 2 barriques.

Beaumont.—Lime-ſtone plentiful, yet lime 10 liv. the pipe.

Alençon to Nonant.—Lime-ſtone every where, yet lime 16 liv. the tonneaux, of 2 pipes.

BOURBONNOIS.—*Moulins.*—Lime 55*ſ.* the poinçon, 30 inches high, and 22 diameter.

VIVARAIS.—*Pradelles.*—Lime 9*ſ.* the meaſure of 32 lb.

Fences.

NORMANDIE.— *Pays de Caux.*—The fences here reſemble more the double banks and ditches of Ireland than any I have ſeen: parapet banks are thrown up out of a double ditch, ſloped; and upon them are planted a hedge, and one or two rows of trees; and the ſoil is ſo rich, that all thrive to ſuch a pitch, as to form hedges 40 or 50 feet high, and perfectly thick. By means of ſome ſmall incloſures of this ſort, around every houſe, every habitation is a redoubt, and would make the country very defenſible for a ſmall army againſt a great one.

Pont L'Eveque.—Many of the rich paſtures here are ſo well fenced, that one can no more ſee through a ſingle hedge, than through a wood; yet there are many willows in them, with only a mixture of thorns and bramble; but they are ſo well trained, and of ſuch a luxuriant growth, as to be impenetrable to man or beaſt.

In fencing little is to be learned in France, yet a conſiderable portion of the kingdom is incloſed. In England we have carried that art to a perfection of which

which the French know little. It is only in a few diſtricts, where gates and ſtiles are regular; in others, a few buſhes, put in a gap, ſupply the place. Whenever the French have inveſted in their agriculture, the ſums it ought to attract, at leaſt three or four thouſand millions of livres more than in it at preſent, theſe objects will receive an attention which they have not yet commanded. They are, by no means, unimportant; and as far as connected with incloſing, in general, are eſſential to proſperity.

Fiſh Ponds.

SOLOGNE.—This province abounds very much with ponds of all ſizes, which let at from 5 liv. to 12 liv. the arpent.

BOURBONNOIS.—*Moulins.*—Through every part of this province, which I ſaw in croſſing it, in two directions, the number of fiſh ponds is very conſiderable. The country, though in extenſive views flat to the eye, is, on a nearer examination, found to ſwell into a variety of gentle inequalities, which form vallies, with ſmall brooks, ſprings, or ſtreams, in them, as eligible for a reſidence, and agreeable to the eye, as it would be beneficial to cultivation, if they knew how to apply them. Mounds are made acroſs theſe little vales, to form ponds; and there are mills at their heads, when the ſtreams are conſiderable enough. Theſe ponds are from two or three to ten, twenty, and thirty acres, and ſome a great deal more. They are all fiſhed regularly every ſecond or third year, and the fiſh ſold, at ſo much a thouſand, to the merchants, who ſend them, by the Allier, Loire, canal of Briare, and Seine, to Paris. On one eſtate, I ſaw eight ponds, that paid 800 liv.; on another, four paid 800 liv.; and, on a farm of about 400 acres, four ponds paid 1000 liv. Water deceives one ſo much in gueſſing the ſuperficies, that I may be erroneous (for nothing is meaſured in this province); but I ſhould gueſs, that land under water paid 20 liv. an acre at leaſt, inſtead of 3 liv. which is the more common net produce of the country; and, at the ſame time that the proprietor receives this ſuperior benefit, his table is, by the terms of the contract with the merchant, who ſtocks the ponds himſelf, allowed to be amply ſupplied.

BRESSE.—The ponds of this little province and Dombes, cover 66 leagues ſquare of country, and are found terrible to population, from the effect they have on the climate*. In 1764, ponds in France generally let at 5 liv. to 7 liv. per arpent †.

The management of ponds is vaſtly better underſtood in France than it is in England, both as to ſtocking, adapting the ſort of fiſh to the ſoil, clearing the

* *Obſerv. ſur L'Agricult. par Monſ. Varenne de Fenille*, p. 270.

† *Chanvalon Manuel des Champs.* 12mo. P. 363.

ponds,

ponds, emptying, fiſhing, &c. &c. In all Catholic countries, fiſh is of more importance than in Proteſtant ones, and this occaſions more attention being paid to them.

Leaves.

LANGUEDOC.—Gathering, the end of July, leaves of mulberries, for feeding cattle.

POITOU.—See them gathering elm leaves for cattle, particularly for mules, the firſt week in September.

TOURAINE.—Clipping elm trees to feed cows, in September.

Near Clarey, they gather the vine leaves in September; we ſaw them ſpread, in large quantities, by the ſides of the roads, with many women, girls, and boys, gathering and drying; they are for winter provender for their cows; this cuſtom is general through the country. They make an infuſion of theſe leaves in hot water, by boiling them with ſome bran; which mixture they give to their cows, in ſnow or froſty weather, with ſtraw. Was a cow fed with leaves alone, it would require 8 or 10 arpents to ſupport a cow the whole winter; they reckon them very beneficial for this uſeful animal. Leaves are ſometimes ſold, in which caſe, ſuch a heap dry as would equal 30 lb. of hay, ſells for 20*ſ.* but all this varies according to the year. An arpent produces ſeven or eight times that quantity.

ISLE OF FRANCE.—Among the winter proviſion which Monſ. Cretté de Palluel, of Dugny, makes for his ſheep, is that of faggots, cut in ſummer while in full leaf, and houſed as ſoon as dry: theſe he has found to be of conſiderable uſe, and to anſwer the purpoſe perfectly well. When given to the ſheep they pick off every leaf carefully. Such a practice well deſerves attention in England.

DAUPHINE.—About Montélimart the leaves of all mulberry trees are gathered in November for feeding ſheep. A gentleman, near the ſame place, feeds a flock of Spaniſh and half bred ſheep, with faggots cut in ſummer from full leaved trees.

PROVENCE.—The preſident de la Tour d'Aigues making elm faggots, in September, for his ſheep; a common practice: poplar alſo and oak; indeed all ſorts are thus applied. Olives are alſo excellent; one of twelve years growth will thus yield to the value of 12*ſ.*; every ſecond year, on good land, more than the expence.

For the better underſtanding this ſubject I beg to refer the reader to an excellent and uſeful memoir on the ſubject, by Mr. Profeſſor Symonds, inſerted in the *Annals of Agriculture*, vol. i. p. 207*.

This is one of the œconomical practices of France, which well deſerves imitation in England: not gathering leaves, for I queſtion whether it would anſwer the

* *See alſo Mem. de la Soc. Roy. d'Ag. de Paris.* 1785. *Trimeſtre d'eté.* P. 22.

expence

expence of labour, but cutting faggots in ſummer inſtead of winter; drying them like hay before binding, and then ſtacking and thatching for feeding ſheep. I made a ſtack of them in 1789, but the two following winters were ſo open and mild, that I could not experience the benefit. I ſhall, however, make other trials on the practice, for I have not the leaſt doubt of its anſwering as well here as in France. Leaves are very nouriſhing, but aſtringent, and wholeſome for ſheep, and ſuch ſtores might be got at eaſily when the ground is covered with ſnow, to the great ſaving of hay. Conſidering the immenſity of leaves that fall to waſte, in a woodland country, it is certainly an object that well deſerves attention.

Threſhing.

ROUSSILLON.—LANGUEDOC.—Through all the ſouthern parts of this province, they tread out the corn with horſes and mules; a man in the centre of the threſhing floor, in the open air, drives them round, and other men ſupply the floor, and clear away the ſtraw. In ſome converſation I had on this method, between Narbonne and Niſſau, I was aſſured it was far preferable to the uſe of flails. That 24 mules or horſes, and 12 men, would *depiqué*, as they term it, 150 ſeptiers of wheat in a day. That ſome farms produce 2000 ſeptiers of corn; what would flails do for ſuch a quantity? I examined the wheat, and did not find it more damaged than with flails; but the climate is to be remembered, which makes the grain much harder than any with us. Seeing ſome flails going alſo, I demanded the reaſon, and was told that the maſter would ſometimes have particular parcels of ſtraw threſhed ſo, to get the corn that was left in it, if he ſuſpected too much; at others the labourers deſire to do it for themſelves, which is ſometimes granted.

DAUPHINE.—*Loriol.*—But Monſ. Faujas de St. Fond has tried threſhing the corn all at once with flails, and finds it much better than with horſes, &c.

Monrejeau to Lann-Maiſon.—The oats are all mown *to* the ſtanding corn; one woman follows each ſcythe, gathers and lays them in gavels, ready to be bound afterwards in ſheaves.

Orange to Avignon.—The ſame method of threſhing with horſes, &c. prevails here; and they ſtack their ſtraw very neatly, plaſtering at top with white clay, mixed with ſtraw and water.

PROVENCE.—*La Tour d'Aigues.*—Seeing a large quantity of the Preſident's wheat ſpread on cloths, for drying in the ſun, and inquiring what it meant, I found it was waſhed, as all is, of which the beſt bread is made; owing, beyond all doubt, to the mode of threſhing, which renders it ſo foul that this operation is neceſſary.

CHAP. XVIII.

Of Tillage, and the Implements of Huſbandry, in France.

NOT an object of the firſt conſequence, but of too much importance to be neglected by a farming traveller. In a climate in which the ſun has power to burn up weeds, with only a ſcratching of the ſoil, and in a territory where harſh, obſtinate, churliſh clays are almoſt unknown, perfection of implements, and great powers of tillage, are not ſo neceſſary as in the leſs favourable climate and ſoil of England.

Of the Tillage, and Laying of Lands.

PICARDIE.—*Calais.*—Lands well and ſtraight ploughed; three horſes.

Montreuil.—All turn-wreſt ploughs; which, from having two breaſts, go alone almoſt as well as with holding; I ſaw a man leave his plough to chat with the driver of a load of bark, and the five horſes went on and performed their work as well without as with him: the double breaſt occaſions the cutting double work. The man, while I held it for a bout, told me that his maſter expected him to plough 30 meaſures thrice in the ſummer.

Bernay.—A pair of horſes.

Abbeville.—Very badly, with four aſſes or two horſes. Feed their aſſes with hay and oats.

Piquigny.—Women ploughing with a pair of horſes.

PAYS DE BEAUCE.—*Toury.*—Do not give the firſt ſtirring to their fallows until May. Plough well, ſtraight, and clean.

SOLOGNE.—*La Ferté.*—Plough their poor ſands all on three feet ridges; and aſſert that without them they ſhould get no corn, as they preſerve the ſand from plaſtering in rains: this is an odd idea, as plaſtering ſuch ſharp ſand is uſually a means of improvement; but ſhowers here certainly fall with much greater violence than with us; their crops, however, are ſo beggarly as to give no weight to their opinions. Their teams of horſes are kept out all the year, as they have the paſturage of the landlord's woods for them. What a barbarous ſyſtem! Plough an arpent a day with three. Plough alſo with ſix oxen, and this in ſand.

To La Motte Beuvron.—Plough with eight bullocks, and on ſand! Buckwheat is given before winter, mixed with oats; if alone, before it has had a ſweat, it gives the cholic; but afterwards, alone ſafely.

Nonan

Nonan le Fuſilier.—For two years paſt, chaff cut at the poſt, of rye ſtraw, mixed with buckwheat, for horſes, and found excellent: the ſcarcity of forage alone drove them to this uſeful experiment.

La Loge.—Through all Sologne the land is ploughed on to the two-bout ridge of three-feet, and they never ſtir it in any other way.

Salbris.—Plough their ſandy gravels with ſix to eight oxen, that are pretty good, ſelling for 6 or 7 louis each.

BERRY.—*Verſon.*—Tillage all done with oxen, harneſſed by the horns; a pair draw a plough; ſome are not bigger than our Alderney cows; the furrow about four inches deep, but hardly to be called a furrow, ſo irregularly and ill cut. They are now ploughing up oat ſtubbles for wheat; an Engliſhman can hardly conceive what work they make; they give four of theſe wretched ſcratchings for every crop.

NORMANDIE.—*Argentan.*—Wretched ploughs drawn by four oxen.

LIMOUSIN.—*Limoges.*—Plough throughout the province with oxen or cows, harneſſed by the horns.

QUERCY.—*Pellecoy.*—Walked from the road to a peaſant at plough with two cows, about as big as Alderney's; it is not poſſible for an Engliſh farmer to conceive how badly; trenches 3½ or 4 inches broad, and two deep, were ſcratched parallel to each other, and the earth driven aſide by two mould boards, ſome one way, ſome another; no coulter to the plough: they do about an Engliſh rood a day. A ſhim, where there are no ſtones, and a Kentiſh nidget, where there are, would do the work much more effectually, and ten times as quickly. But their burning ſun deſtroys weeds better than ſuch tillage. Their hoeing is excellent and effective, and to this their crops are more owing than to their ploughing.

Cauſſade.—The lands ploughed as ſtraight as in Suffolk; all by oxen or cows.

LANGUEDOC.—*Montauban.*—Plough with oxen, without either reins or driver.

Toulouſe to St. Lyce.—The ploughs better, the mould boards being larger. The fields are thrown into ſtetches or flat lands. Ploughs are ox-hoeing the vines, each ox walking in an interval with a row between them, and yoked with a ſliding yoke, to vary the diſtance from ox to ox, and baſkets at their mouths to prevent their biting the vines. The rows at five feet, and the plants at two.

Bagneres de Luchon.—They ox-hoe the rows of their maiz. All oxen yoked by the horns.

ROUSSILLON.—*Bellegarde to Perpignan.*—Plough with mules yoked; alſo with aſſes in the ſame way. Earth-boards of the ploughs are to the left.

Pia.—Day's work of a man, his plough and team, 3 liv.

LANGUEDOC.—*Narbonne.*—Of many ploughs now going (July), moſt are drawn by mules, in yokes; the plough beam faſtened to the centre of the yoke; earth-board to the left. They plough well.

Pezenas to Montpellier.—The oxen all yoked by the horns. Ploughing olive grounds with one horſe; the plough of an odd conſtruction, the beam dividing and forming ſhafts for the horſe.

BEARN.—*Pau to Moneins and Navareins.*—All this country is ploughed with oxen that are good, and in good order.

GUIENNE.—*Agen to Aiguillon.*—Plough with very fine cream-coloured oxen, a pair to a plough. All draw by their horns.

Tonneins.—A pair of very fine oxen plough a journal a day; that meaſure contains 33,750 ſquare feet, and is to the Engliſh acre as 33 to 38. The plough beams all faſten to the yokes.

To La Motte Landron.—They are now (Auguſt) ploughing for *jarouche* and forage (by the laſt is meant oats for ſoiling), and are very attentive in the ordering and finiſhing their lands, and covering the ſeed; breaking the clods with a wooden beetle and rake, ſo that the high ridges are brought down in ſuch a manner as to admit the ſcythe, and at the ſame time the furrows are kept open.

Barſac.—They are now ox-hoeing their vines quite clean; and ſee one piece of oſiers ox-hoed.

POITOU.—A pair of oxen without either driver or reins.

TOURAINE.—*Montbazon.*—Horſe-ploughs; ſaddles on the horſes with a bar like a curricle, one from ſaddle to ſaddle, to which the beam of the plough attaches. A bad plan, as by this means the horſe does not draw from his ſhoulders, where his ſtrength and weight lie.

SOLOGNE.—*Chambord.*—The poor ſands of this country are laid on the three feet ridge of two-bouts, and rye and buckwheat ſown on them; the furrows are as wide as the ridges, and yield nothing but weeds.

La Chapelle La Reine.—Plough with two horſes and no driver, yet the price per arpent is 5 liv. 100 perch 22 feet.

ISLE OF FRANCE.—*Mellun.*—Plough into broad flat lands, and very ſtraight. Many ploughs with three horſes, one before a pair; no driver.

Liancourt.—In the general arrangement of their farms, they reckon three horſes to a plough, though they never uſe more than two at a time; and a plough to 75 arpents (1¼ acre), 25 of which are fallow; and a common calculation here is 1500 liv. rent per plough, which makes 20 liv. per arpent. They never uſed oxen until the Duke of Liancourt introduced them from England.

Paris to Villers Coterets.—The whole way the lands are ploughed quite flat, with a turn-wreſt wheel-plough, and much of the wheat is overflowed, for want of furrows to carry off the water from the late rains.

PICARDIE.

PICARDIE.—*La Fere.*—Four horſes in the ploughs, and no driver.

St. Quentin to Cambray.—Thirty-five horſes to a farm of 800 ſeptiers; and twenty horſes on one of 400. The latter proportion is ſeventeen on 400 Engliſh acres.

FLANDERS.—*St. Amand.*—This ſeaſon (November 1, 1787) the wheat here, owing to the exceſſive rains, is put in as badly as poſſible. The loweſt and wetteſt fields are perfectly flat, and half of them, in parts, overflowed. Furrows are drawn, as marks for digging, which is doing, through all the country, with a narrow ſpade, of 5 inches wide, and 8 long; theſe furrows are from 6 to 8 yards aſunder, but done poorly, miſerably crooked, and the whole unſightly.

Lille.—There is a minutia of labour and attention given to land in this country, which muſt, in the nature of things, reſult from that over-population, which is found every where in France, on ſmall properties. I ſaw many men and women hoeing up the land with great mattock-hoes, almoſt a foot ſquare, with long handles; by which they are lifted high, that in the fall they may cut 4 or 5 inches deep. They work by lines that mark out beds, 5 or 6 feet broad, along which other men dig out trenches, a full ſpit deep, ſpreading the earth over the beds. Wheat ſeed is then ſown, and covered by a man's drawing a wooden harrow over it: another follows with a hoe, to cut clods, and level inequalities. I calculated, in my mind, what this would coſt me in Suffolk, and I made it amount to 3l. 10s. per Engliſh acre. Such operoſe methods are not in practice here, becauſe the labour which comes to market is cheap, ſince ſuch labour, like every thing elſe in Flanders, is what is commonly called dear: it ſprings alone from the population that is attached to the poſſeſſion of land in property; and is, relative to any other country, a ſyſtem of trifling; a waſte of labour not greatly better than picking ſtraws. Perhaps it is owing to this over-population of the fields, that Flanders, with the richeſt ſoil in Europe, cannot feed her own towns, but is forced to import large quantities of wheat from Artois and Picardie, where large farms enable thoſe provinces to ſpare to the wants of their more ſubdivided neighbour.

About four or five miles from Lille begins another method of laying their lands; it is that of ploughing them up, in very broad high arched beds, of all breadths, from four rods to ten or twelve. When incloſures are ſmall, a whole one is formed into but one land; and in larger fields, there is a drain left at every parting furrow, which is either planted with a row of alders or willows, or dug into a trench and laid to graſs. In a land ten or twelve rod wide, the centres may riſe four or five feet higher than the bottoms of the furrows; the ſlopes on each ſide very gentle and regular; and ſo equal, that all water is effectually drained off. I diſcourſed with ſome farmers on this method, ſtating objections

objections and hearing their anſwers. They inſiſt, that no other method of laying land dry, is ſo effective, cheap, durable, or commodious. That all the methods I mentioned, are known and practiſed in ſome part or other of Flanders, but that all the beſt huſbandmen have one opinion, are united in thinking this mode ſuperior to all others. That planting alders or willows (which are always kept low, by conſtant cuttings), or having graſs in the furrows, are not neceſſary parts of the ſyſtem, and that the furrows, in a few years after throwing up the lands, are as good as the reſt of the field. The neatneſs and regularity with which the ſyſtem is executed, is extraordinary; the borders, headlands, and ſides of fields, are ſo dug away, that a ſmall one has the form of a feather-bed, the feathers of which are driven towards the middle. I never ſaw this ſyſtem ſo well executed as here, though I have known it copied in England; not in the highlands of many of our counties, which are, on compariſon, a barbarous method, but in the practice of a few individuals who had ſeen the effect in Flanders.

Armentieres.—Paſſing this town, meet with another exertion of induſtry, that deſerves attention. Many ſtubbles were ploughed into beds eight or ten feet wide, and the furrows digging out, and the earth ſpreading on the beds. I ſuppoſed this was for wheat, but, on inquiry, found that theſe fields were intended for beans. They leave the land, thus prepared, till March, and then plant, without further tillage. As ſpring tillage is thus avoided on wet land, the ſyſtem muſt be admitted to be excellent.

Mont Caſſel to Berg.—The lands not raiſed ſo high as thoſe above-deſcribed, nor with equal ſkill or attention, and this wet ſeaſon (November) ſhews the conſequence of it; they cannot get on to their lands to ſow wheat, but moſt of the high lands are ſown, and ſome of them green.

ARTOIS.—*Lillers to Bethune.*—The lands broad and arched; but gently. From Ardres to Bethune, all the way, the greateſt attention to plough the land the moment the corn is carried, yet much is now uncut and ripe.

To Arras.—They are now (Auguſt 8,) ploughing the ſtubbles of ſuch corn as is carried, with one horſe, that walks, not in the furrow, but on the unploughed land, by the ſide of it: the plough beam very ſhort, with a foot; no coulter; a well-curved breaſt and throat; but too wide in the heel: ſtir ſhallow, and do not make good work; do about a meaſure a day.

NORMANDIE.—*Rouen.*—All the harrowing is done in this country by men leading many horſes. I ſaw one man leading ſeven horſes, each drawing a harrow: the horſes are tied one behind another, obliquely, ſo as to be out of danger of the harrows.

BRETAGNE.—*Rennes.*—Plough with four horſes and a driver; or two horſes and two oxen.

Vannes.

Vannes.—The common plough team, two oxen; always harneſſed by the horns, and a little horſe, a mere poney, before them; if no horſe, the oxen are led by a woman. They uſe aukward, ill made, but light, wheel-ploughs.

Auvergnac.—The farmers (metayers) have here the Eſſex cuſtom of digging away the borders and margins of all arable fields, and carrying them on to the land, which they practiſe very exactly, as it is done in that county.

ANJOU.—*Migniame.*—They plough deeper, in common, than ever I ſaw in any part of either England or France; eight or nine, and even ten inches deep; uſing ſix or eight good oxen of the Poitou breed; but it is done, in one reſpect, badly,—their depth obliges them to carry a furrow a foot wide, yet their ſhare is not ſix inches; and they do every thing on four-feet ridge-work. The great ſtrength of the team is moſt wanted for the roots of the fern, which are now lying about the land in heaps.

La Fleche to Le Mans.—They are now ploughing ſand land, very ſlowly, with four bullocks and two horſes. Prepoſterous!

NORMANDIE.—*Beaumont.*—Two bullocks and two horſes, to draw thirty buſhels of dung.

To Alençon.—Plough with four or ſix bullocks, or horſes, and a driver.

Bernay.—Wheel-ploughs, with two horſes, and no driver. The rich loams here are on broad lands, very well arched.

Toſtes.—Wheel-ploughs; three horſes, and no driver.

To Dieppe.—Ditto; well ploughed, flat, and deep.

BRIE.—*Neuf Moutier.*—Monſ. Gibert, a conſiderable farmer and proprietor, keeps fifteen horſes for 300 arpents of rich loamy clay (375 acres Engliſh).

CHAMPAGNE—*Chalons to Ove.*—Plough with one horse.

To St. Menehould.—Plough with four horſes, without a driver; turn-wreſt ploughs.

LORRAINE.—*Mars-la-Tour to Metz.*—Fallows dunged, after ploughing with ſix horſes (July).

Luneville to Blamont.—Broad lands, and ſome arched, but no water-cuts, conſequently the crops much damaged, whenever rain falls. Plough with four, ſix, and eight horſes, cows, and oxen; all mixed ſometimes. I have ſeen women holding the plough, and a boy driving: wheels, but not turn-wreſt.

ALSACE.—*Saverne to Wilteim.*—Here is a remarkable cuſtom, of both waggons and ploughs being driven by poſtillions.

To Straſbourg.—The lands broad and arched, as in Flanders.

To Scheleſtat.—The ſame lands on the flat rich vale.

Colmar to Iſenheim.—Oxen here improve much on the preceding country: they are harneſſed by the horns, drawing ſingly in lines, and alſo mixed with horſes.

To Bẽfort.—Plough with a pair of oxen, without line or driver. Arched broad lands.

BOURGOGNE.—*Dijon.*—Plough with ſix horſes.

Bourbon-Lancy.—Plough with ſix oxen, that draw by the horns. A level country; a ſandy gravel.

BOURBONNOIS.—*Chavannes.*—All the arable thrown into one-bout ridges, about ſixteen inches broad.

AUVERGNE.—*Riom to Clermont.*—Plough with a pair of oxen.

Clermont to Iſſoire.—Ploughing with oxen only; ſome of them good; all draw by the horns.

Fix to Le Puy.—Miſerable ploughing; the plough has one long handle; and the man holds a long light pole in the other hand for a goad: a pair of little oxen.

DAUPHINE.—*Montélimart.*—Plough with two mules.

There is no part of England where lands are laid ſo neatly as in Flanders; but the French have no other province that partakes of this perfection; Alſace is in a ſimilar ſyſtem, but not ſo well executed. In general, the tillage of the kingdom is moſt miſerably performed; and many of the provinces are, in this reſpect, ſo backward, that, to Engliſh eyes, they appear to be pitiably conducted.

The principal queſtion that ariſes upon tillage is the comparative advantage of uſing horſes or oxen. Both have had their advocates. The principal opponents to oxen were the œconomiſtes, that fanciful ſect, of very worthy and ingenious men, who, from their chambers at Paris and Verſailles, offered opinions upon every part of the farmer's buſineſs. They divided the arable lands of France into thoſe managed in the great and little culture: in the former, the tillage done with horſes, and in the latter, with oxen; and as Flanders, Picardie, Normandie, &c. where horſes were in uſe, being alſo let at money rent, thoſe provinces were neceſſarily more at their eaſe than Sologne, Berry, Limouſin, and others in the hands of metayers. This compariſon is often made in the writings of the œconomiſtes, and abundantly more ſtreſs laid on the nature of the team than it deſerves; they gave many calculations to ſhow, that horſes were more advantageous, but all founded on falſe data; for they allowed only two horſes to a plough, but four or ſix oxen, forgetting that in Guienne, Quercy, part of Languedoc, &c. a pair of oxen plough as well as any pair of horſes; an omiſſion this the more extraordinary, becauſe thoſe provinces are among the beſt cultivated in France: the diſtrict of the Garonne is like a garden, and the oxen, large, vigorous, beautiful, and in fine order, the very contrary of the miſerable half ſtarved beaſts, deſcribed by the Marquis de Mirabeau, Monſ. Du Pont, Du Queſnay, and other œconomiſtes. The compariſon has been made in England with great accuracy; and the opinion now is, that oxen are the moſt beneficial

beneficial and the moſt profitable, and that a pair of good oxen will plough as much in a day as a pair of good horſes. The other œconomical points of the compariſon are all in favour of oxen.

But though the ſuperiority, both in ſaving to the farmer, and in national benefit, is clearly in favour of oxen, yet there want improvements to be made in training and working them. Some ſtep well, and move with as much freedom and activity, on a walk, as horſes, but this is not the caſe with the generality; they are trained to go too ſlowly, and demand, *for light work*, more hours than horſes. This is certainly owing to negligence and idleneſs of workmen and farming ſervants, for I am well perſuaded, from circumſtances I have remarked in them, that they are capable of great activity and quick motion. I have had them of a large ſize, which have taken leaps that no horſe in the world would attempt, a proof not of activity only, but of great muſcular ſtrength.

Accuſtoming them to more ſpeed, even to a trot of five or ſix miles an hour, is certainly as practicable, in the cool climates of Europe, as it can be in the burning ones of Aſia. The fact that they draw coaches at that rate, in the Eaſt Indies, ſeems to have been long aſcertained. The Targuzinian Tartars ride on their oxen*: the Nogayan Tartars, of Koundour, do the ſame†: Mandelſloe‡ rode on an ox part of the way from Agra to Dehli, that carried him ſeven leagues in four hours: in Kachemire they ſaddle, bridle, ſhoe, and ride them as faſt as horſes‖; they alſo draw their coaches: at Surat, in riding them, they take care their horns are not more than one foot long, to avoid being ſtruck when flies bite; they never ſhoe them but in rough places: in the caravan from that city, they carry 300 to 350 lb.§: a camel carries 900 to 1000 lb.¶: but in a late account, of great authenticity, 500 and 600 lb. is mentioned as the common load of a camel in croſſing the Arabian deſerts**: the hackrees, a ſort of coach, is drawn in Indoſtan by oxen; which, when well trained and managed, will maintain their rate againſt horſes at full trot; thoſe of Guzerat and Cambray are as large as Lincoln beaſts, and white††: the oxen that are rode in Formoſa, go as well and as expeditiouſly as the beſt horſes, by being trained young‡‡: the Hottentots train oxen to gallop and even run down an elk §§.

If ſuch quickneſs of movement could be given to the oxen of France and England, it would be a very conſiderable object, for it would get over the principal objection to them, and would at the ſame time render them applicable to a great variety of uſes, to which at preſent they are never put.

* *Iſbrandt Ides. Harris' Voyages*, vol. ii. p. 936. † *Ruſſia; an Account of all the Nations which compoſe that Empire.* 8vo. 1780. vol. ii. p. 85. ‡ *Harris*, vol. i. p. 764. ‖ *Ib.* p. 814. and *Le Blanc's Travels*, p. 54. § *Harris*, vol. i. p. 827. ¶ *Ib.* vol. ii. p. 883. ** *Phil. Tranſ.* vol. lxxxi. part 2. p. 136. †† *Groſe's Voyage to the Eaſt Indies*, p. 249. ‡‡ *Grozier's General Deſcription of China.* 8vo. vol. i. p. 226. §§ *Sparman's Cape of Good Hope*, 4to. vol. i. p. 230.

Of the Implements of Huſbandry.

PICARDIE.—The harrow teeth of wood, all the way from Calais to Clermont. Turn-wreſt ploughs, and bad.

SOLOGNE.—The ploughs have all a broad double finned ſhare, and double mould-boards, with wheels; the whole ill conſtructed.

BERRY.—The plough very ill made; it has two ſcraps of ſomething like mould-boards, and a long ground-reſt, at the end of which is an iron ſhare, four inches wide, ſomething like the ſhim which they uſe in Kent for earthing up beans: a hole for a coulter, but I ſaw none uſed. Nothing can be worſe than its work. They have alſo turn-wreſt ploughs, ſomething like thoſe of Kent, but bad. Beyond Argenton, the beam of the plough faſtens to the yoke of the oxen; the plough has a chiſſel-reſt and point, and no other mould-board than two ſmall ſticks, ſtuck in it, with a circularly bent one behind; theſe ſticks anſwered the purpoſe of two mould-boards, but very badly; the handles ſo low, that the body of the ploughman is in a bent poſition to hold them.

LIMOUSIN.—The ploughs which I ſaw near St. George, &c. have one mould-board on the left ſide; the ſhare long, and 1½ inch broad; the beam reaches to the yoke, and conſequently ſaves traices. They plough better than in La Marche.

QUERCY.—The ſame long beams to ploughs that reach to the yoke; have two very bad mould-boards; the ſhare long and narrow, with no coulter; but the land exceſſively ſtoney.

LANGUEDOC.—*Montauban to Toulouſe.*—The plough much better than many I have ſeen in France; it has a broad coulter, and a ſhort noſed ſhare; one mould-board, and that to the left; the plough beam, like many others, fixes to the ox-yoke.

To Noe.—Meet waggons for the firſt time; the wheels ſhod with wood, that is, wood upon wood. The oxen all cloathed with linen againſt the flies, one tape under the tail and another round the neck. The price of theſe waggons new is 60 liv. (2l. 12s. 6d.); they carry, with a pair of oxen, two caſks of wine, containing 4 barriques, which is 20 quintals, or about a ton Engliſh. Some pairs of oxen will draw 40 quintals.

GUIENNE.—*Tonneins.*—The ploughs have very long hollow or fluted mould-boards, for lifting the furrow, in order to make ſharp high two-bout ridges.

ANGOUMOIS.—*Barbeſieux.*—Wheel-ploughs.

ISLE DE FRANCE.—*Melun.*—Large heavy wheel-ploughs, with breaſts as wide and thick in the throat, as the heel is broad; muſt go very heavy for the horſes.

Commerle.—Wheel-ploughs drawn by a pair of horſes.

Dugny.

Dugny.—One of the beſt implements I ſaw in France, was the chaff-cutter of Monſ. Cretté de Paleuel; it conſiſted of two cylinders, with edges that worked into the vacancies of each other, and, ſucking in the ſtraw delivered very rapidly, cut it into coarſe chaff; one man fed the machine, by ſpreading the ſtraw on an inclined plane; and a boy drove a ſingle horſe, which turned the machine. A tolerable mechanic, improving on the idea, would produce a much more powerful cutter than any yet invented.

FLANDERS.—*Lille.*—Many waggons loaded with chalk ſtones, &c. with the principal part of the load laid on the hind wheels, and a very ſmall portion on the fore ones; a good ſenſe that reproaches our barbarians in England.

ARTOIS.—The ſhort ſcythe which they uſe through this province, and all over Flanders, is one of the moſt uſeful implements that can be ſeen: they call it the *pique:* it is much like the repreſentation given by Mr. Walker in the Annals of Agriculture; only the handle here is much ſhorter: a man cuts an arpent a day in general with it, and ſometimes more; he cuts and rolls into bottes an arpent of vetches (called here, mixed with oats, *dravin*); and he cuts an arpent of any ſort of white corn, others following to bind with ſtraw bands, made at home. This is a moſt œconomical ſyſtem. The ſhort handle of the pique is made to reſt againſt the elbow; he holds it with the right hand only, or rather hand and arm; and in his left he has a ſtick, with a hook at the end of it, with which he draws or holds the corn in the right poſition to receive the ſtroke. They uſe ſcythes and cradles alſo for ſome works.

St. Omer—That the pique is much eaſier to work than a ſcythe, appears from women and even girls cutting ſtout crops of tares with it. They give 45*ſ.* per meaſure of oats for cutting, with the pique, and a man does three-fourths per day.

NORMANDIE.—*Harfleur.*—I noticed here, what I may have often paſſed, perhaps, without ſeeing it, a pierced roller behind, and before a cart, which turns in the frame, or in the ladders, by which means a load is corded with a ſmall hand-ſpike, almoſt in a moment; I have known ſomething like it in the ladders of carts in England, but forget where; here they let down a cart behind, by raiſing the ſhafts in the air, ſet it againſt a caſk, and wind the caſk on to the cart, by means of the fore-roller, eaſily and commodiouſly.

Avranches.—Sea-ſand is drawn in this country in carts, by a horſe in the ſhafts, and another to lead, with two or three oxen between, and all in a line. About Carentan they attach the rope, by which they draw, to the yokes of the oxen, conſequently the horſe draws them down to the line of his own draught; and their rope to the top of the pole between the two thillers (when they are two), conſequently all draw the thill-horſes down. A team of five, thus harneſſed, does not draw more than from 20 to 24 buſhels of ſea-ſand: the horſes are, however, poor ſmall things; and no wonder, from the number of miſerable

garran (poney) ſtallions that infeſt every ſtable you enter. The oxen are better, but not large.

BRETAGNE.—*Varades.*—They are now working their ridges, of three and four feet acroſs, with a great timber triangular machine, drawn by oxen, to anſwer the treble purpoſes of harrowing, rolling, and levelling.

ISLE DE FRANCE.—BRIE—*Nangis.*—Wheel-ploughs, and very good, except ſingly the breadth, which is 16 or 18 inches, and in narrow lands loſes a fourth; it only wants to be taken in narrower, and left with the ſhare projecting more from the throat.

CHAMPAGNE.—*Mareuil.*—Bad turn-wreſt ploughs; but have the Brie one, which they prefer when there are root weeds to cut.

Rheims.—Very light ploughs, with a broad ſhare, and one earth-board, but ill ſet on; it has wheels on the beam, which is little more than a ſtick. Women are ploughing.

To Chalons.—Many rollers every where; an implement very uncommon in France.

St. Menehould to Verdun.—Wheel ploughs that are not turn-wreſts, with well turned mould-boards. This is among the beſt ploughs I have ſeen in France.

LORRAINE.—*Mars-la-Tour to Metz.*—Broad ſhare and good, but too wide at the heel; wheels.

Pont-à-Mouſſon to Nancy.—Here, for the firſt time, I met with waggons of a peculiar ſtructure, the fore wheels are within four inches as high as the hind ones, and are high enough to enable one horſe, for none are drawn by more, to convey 800 lb. to 1000 lb. Ploughs ſo wide at the heel, that they are drawn by eight horſes.

ALSACE.—All through the part of Alſace, which I have ſeen, they uſe ploughs with low wheels; the ſhare round and broad, and as wide on the land ſide as on that of the furrow, which is very erroneous, for they are not turn-wreſts, but with fixed breaſts, turning the furrow to the left.

BOURBONNOIS.—*Moulins.*—The common plough a turn-wreſt one; but they have another for ſtirring, called *areou*, without an earth-board.

AUVERGNE.—*Iſſoire.*—The plough only opens a ſlight furrow, into which the earth falls again, and buries nothing, and without a hot ſun would kill nothing; the ſhare a chiſſel point, one inch wide at one end, and three inches at the other end for ſtoney land, or for that which is free, turning it occaſionally end for end. An earth-board on each ſide, but not more than four inches high.

Upon the implements in general, I may obſerve, that they will in all countries be proportioned to the wealth of the farmers. There is nothing in the kingdom comparable to those which we ſee in every part of England, where the implements of huſbandry are carried to a perfection of which one ſees nothing in

in any other country that I have viewed. The right form and powers of all inſtruments, uſed in agriculture, depending very much on the application of mechanical principles, were proper objects for the attention of thoſe ſcientific men that compoſe academies; I do not know, however, that they have done any thing in this reſpect in agriculture, though ſuch great exertions have been made in manufactures and ſhip-building. At one period, the ingenuity of mechanical genius in France was employed on agricultural tools; and then, as an ill ſtar would govern, nothing was thought of but drill-ploughs and horſe-hoes. Fortunately all invented were abſolutely good for nothing, which threw ſuch a diſcouragement on the practice, that the folly was but of ſhort duration; had they been better it would have laſted longer, and would have done ſo much the more miſchief; for the drill huſbandry, at its beſt efforts, is fitter to amuſe very ingenious gentlemen, who aim at great products without attending to expences, than to become the ſteady ſtaple practice of a kingdom, in the hands of men who cannot eaſily underſtand refinements; and if they could underſtand, could much leſs afford them. Adopting beneficial courſes of crops, that will allow a great increaſe of cattle and ſheep; draining, irrigating, manuring; ſuch objects are applicable to common farmers, little and great; but the refinement of drilling, applicable but to certain crops and certain ſoils, is not adapted to the maſs of huſbandmen, by whoſe more plain exertions mankind muſt be content to be fed.

CHAP. XIX.

Of Manures and Manuring in France.

PICARDIE.—THROUGHOUT this province, moſt of the way from Calais to Clermont, the dung is now (May) carried out and ploughed in upon the fallows; it is in a long ſtrawy ſtate, and not one-fifth part rotten; nor half of it ploughed in.

PAYS DE BEAUCE.—*Toury.*—Many pits of white marl in this rich plain of Beauce, quite to Orleans; the fine loam four or five feet deep on it. They ſpread it on their lands, but the quantity very ſmall; nor did I ſee any ſigns of old pits.

SOLOGNE.—*La Motte Beuvron.*—The rye-ſtubbles are (May) collected in heaps on the land, having been left ſo all winter, to prepare it for rotting for manure. Surely they might find a better way of doing it; houſing their ſheep, as they do, at noon as well as night.

LIMOUSIN.

LIMOUSIN.—*Uſarch.*—Collect leaves to make manure with.

LANGUEDOC.—*Niſmes to Quiſſac.*—In cultivating waſtes, or old neglected pieces, they pare and burn; alſo collect turfs and clods in heaps, on faggots of box-wood, which they burn.

Lann-Maiſon to Bagnere de Bigorre.—Cut from their waſtes, much fern, which they ſpread on their cultivated lands, and, ſetting fire to it, find the aſhes equal to a dunging. They alſo cart much to their ſtables and farm-yards, to make dung with.

GASCOGNE.—*St. Palais to Anſpan.*—Paſs three or four lime-kilns, which, my guide aſſures me, are employed in burning for manure, to improve the waſtes that abound ſo much in this country; and I ſaw ſeveral heaps near houſes, without any ſings of building going forward.

A general practice through theſe mountains, and almoſt to Bayonne, is that of manuring for *raves*, with the aſhes of burnt ſtraw. I obſerved ſeveral fields quite black; and, demanding what it was, my guide told me of this common practice here; afterwards I ſaw them ſtrewing ſtraw thickly over land, part of which had been already burnt on. They do this on a wheat-ſtubble; but not thinking that ſtubble enough is left, they add much wheat-ſtraw, and, ſetting fire to it, burn the weeds as well as the ſtraw, and clean as well as manure the land. With ſuch quantities of fern on all their extenſive waſtes, I aſked why they did not burn that, and keep their ſtraw? The reply was, that fern makes much better dung than ſtraw, ſo they burn the ſtraw in preference. As ſoon as the operation is over, they plough the land, and harrow it in rave ſeed. One large field, thus treated, I ſaw ploughing for that crop. They both hoe and hand-weed the raves, and have them ſometimes very large; many as big as a man's head. Uſe them for oxen.

Fleurange to Leitoure.—Chop their ſtubbles axactly as in Suffolk, driving it on with their foot: they gather it for making manure.

TOURAINE.—*St. Maure.*—Here we found a greater exertion in huſbandry than is commonly found in France, that of marling. We ſaw ſeveral large heaps of white marl, and at one of them four or five carts at work, each with three horſes. It is found almoſt every where under the country, at the depth of three to five feet; the ſoil on which they lay it, is a good loam; adheſive, but not clay. They draw it up by buckets, which is a ſingular practice for ſuch ſlight depths. The marl is in ſome pits white, in others yellowiſh, which is reckoned the beſt; it is very ſoft and fat to the touch. They ſpread twelve cart loads per arpent, of 100 *chainé*, each 25 feet ſquare, 62,500 feet, or more than an acre and half; and it laſts good about 24 years. The landlords, on leaſes of nine years, pay the digging, and the tenants the carting. Of the yellowiſh ſort they do not ſpread quite ſo much as the white. The ſame account was given at Montbazon;

Montbazon; they ſpread it on the fallows, after two ploughings; and having ploughed in the marl, manure it with dung, and ſow wheat. Make compoſts alſo of marl and dung mixed.

Orleans to Petiviers.—Under the greater part of this country there is a bed of imperfect marl, which is over the calcarious ſtone of which the roads are made. The farmers ſpread this marl on their lands, at the rate of 10 *tomberaux* per arpent, which laſts twelve years; ſome, better than the reſt, has been known to laſt thirty years.

Isle de France.—*Liancourt.*—Within two leagues of Liancourt, there is a navigation from Paris, but no idea, in any part of the country, of bringing manures; no wonder; for they carry flour thither by land carriage; even the millers, who ſend it regularly, do the ſame.

Soissonois.—*La Fere.*—A vaſt excavation made in a hill, by digging and burning peat for manure: great heaps of the aſhes now here. The price the farmers give is 22*ſ.* per meaſure, that holds 60 lb. of wheat, fifteen of which they ſpread upon an arpent. The effect is very great on all kinds of plants. This peat is unlike any I have ſeen, reſembling an imperfect coal; and the being found, not on a plain, but on hills, for I ſaw ſeveral, and all equally on elevations, diſtinguiſh it remarkably from the peats of England. The mine of this hill is nearly exhauſted, as the common red loam of the country now appears nearly all around it.

Flanders.—*Lille.*—See many loads of urine and night-ſoil carrying into the country, by the farmers, for manuring their lands with. It is loaded in caſks: each waggon carries 10 *tonneaux* of about half an hogſhead Engliſh. They lay from ſixteen to twenty upon a *quartier* of land, at the expence of 7 liv.: uſe it for cole-ſeed, wheat, flax, &c. and find it equally excellent for all ſorts of crops.

Armontieres to Montcaſſel.—Holes are dug in the ſides and corners of many fields, for receiving the urine and night-ſoil, which is brought from every town, in caſks, and kept againſt the ſeaſon when it is wanted. Some have ſmall roofs built over, to exclude the ſun, wind, and rain; and others covered with ſtraw. The moſt correct and never-ceaſing attenſion with which they procure and uſe this manure, deſerves the greateſt commendation.

To Berg.—A good deal of land chalked as well as dunged, and ready for wheat. The chalk is in large hard lumps, but broken and ſpread moſt curiouſly; more evenly than ever I beheld any thing ſimilar in England; where the rough and unequal manner in which marl is rather tumbled than ſpread over the ground, is a reproach even to our beſt farmers, who permit thoſe labourers, whoſe families are ſupported by poor-rates, to execute their work in that manner, to earn ten ſhillings a week inſtead of eight.

NORMANDIE.—Throughout the part of this province which I have ſeen, they gather their wheat-ſtubbles, and even bundle it in ſheaves: they chop it with an inſtrument ſomething like a crooked ſcythe, fixed at the end of a handle of ſix or ſeven feet long; but do it much ſlower than in England, with a common ſcythe.

Iſigny.—Here, for the firſt time in France, I ſaw compoſts of dung and earth made.

Carentan.—Uſe ſea-ſand for manuring their paſtures, ſpreading twenty loads per *vergé*, each load twelve to ſixteen Engliſh buſhels. The *vergé* equals 96 Engliſh perches. Mix it alſo with dung.

To Coutances.—Manuring with ſea-ſand continues hither.

Avranches.—And hither; they have banked out half the river, which is a ſmall arm of the ſea, in order to build a bridge; and the countrymen are digging out the blue ſea-mud, and carrying it away to conſiderable diſtances.

BRETAGNE.—*Dol to Combourg.*—Wheat-ſtubbles gathered carefully; and a great deal of fern cut now (September 1), and in heaps.

Hedé.—From entering Bretagne, paring and burning every where practiſed, but the heaps too large and too much burnt.

Rennes.—The farmers and gardeners buy the town dung, at 4 liv. the load.

Belle-Iſle to Morlaix.—The rough land of this country is reckoned to find fuel and manure: one of the reaſons for almoſt the whole of it being in ſuch a rough ſavage ſtate. They have an execrable cuſtom, well adapted to perpetuate their deſerts, that of burning parts for aſhes, to carry to their good land.

Morlaix.—Heaps of ſhell ſand on lays, ready to ſpread for ſowing wheat; the ſame huſbandry is practiſed on our oppoſite coaſt, in Cornwall.

To Breſt.—A moſt excellent cuſtom of going round all the incloſures with an inſtrument between a ſcythe and a wood-hook, for cutting up all graſs, weeds, and rubbiſh, on the banks and in the ditches, leaving them in heaps, and then carting them away for making litter and dung; a practice that cannot be too much commended.

Chateaulin.—Paring and burning, the origin of all the culture there is in Bretagne; and the ruin of the province at the ſame time. They pare 2½ and 3 inches deep; and having exhauſted the aſhed by three or four crops, leave it to weeds for twenty years before it is fit to burn again.

Quimperlay.—There is here a moſt ſingular huſbandry, of which I never ſaw any traces before. It is to pare the rough land, and not to burn, but to pile it up in heaps regularly ſquare, of about 25 or 30 cubical yards in each, and about four of them to an acre; they are ſquared up very neatly, and then the field is left for ſome time, to cover itſelf with a new herbage, which is free from furze and broom, but not quite ſo from fern; after a time, the heaps being rotten, they

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are carted and ſpread, and the land cultivated. Sometimes they cultivate the land before they are ſpread, as I ſaw ſome in pieces of buckwheat. Paring and burning is alſo practiſed. This method is inferior to burning; it does not equally deſtroy grubs, vermin, and weeds; and the double carting is a conſiderable expenſe.

Vannes.—Theſe heaps formed in the ſpring, and many will be ſpread this year for rye. Here they conſiſt of three-fourths or ſeven-eights of turf, pared off from every hole and corner from commons and bad fields, and carried to the good ones; and if this execrable practice is of any antiquity, it will account for the barren and wretched ſtate of the country. Every poor field is made good for nothing, and the good one cropped, in conſequence, till it is almoſt as bad. Theſe heaps continue about Vannes in amazing quantities.

ANJOU.—*Migniame.*—The common manuring, ten loads of dung, each 3000 lb; but not more than four of Angers dung, night-ſoil, aſhes, &c.

MAINE.—*Le Mans.*—Marl is here uſed; 100 pipes are laid on a journal.

NORMANDIE.—*Allençon.*—Fallows all dunged, with ſquare lumps of dung, quite black, as if caſt in a mould; and very thinly, not more than ſix or ſeven loads an acre.

Leſſiniole.—Marl employed here; or rather a hardiſh imperfect chalk-ſtone; drawn up in buckets; it laſts twenty years. Stubbles cut cloſe and botted.

Bernay to Elbœuf.—Marl.

Rouen.—Monſ. Scannegatty, Profeſſor of Phyſicks in the Royal Society of Agriculture here, having obſerved, that, in calcining gypſum, it was apt, for various uſes, to be unequally burnt, part being partially reduced to lime, and the reſt not ſufficiently calcined, invented a furnace for the more equal diſtribution of the heat; a vault pierced for the fuel, with a long channel beneath, for conveying air, and a door to the mouth of the furnace; at top, various holes, by way of chimnies, for the ſmoak to iſſue, and which he cloſes alternately. He knows when the gypſum is ſufficiently calcined, by applying a cold bright iron to theſe holes; it is inſufficiently done while any humidity riſes.

La Roche Guyon.—Elm leaves are found to make good dung, but not oak ones; the latter take three years to rot ſufficiently.

ISLE DE FRANCE.—*Nangis.*—There are aſs-men, who take marling to do for the farmers, at 18 liv. per arpent (to Engliſh acre as 32 to 38). Monſ. De Guerchy, after water in a pond, nine crops of oats, and all good.

To Meaux.—Long dung ſpread and ſpreading now (July 2), for wheat next year.

Neuf Moutier.—Manure their rich clays with the white marl found under them; which has the appearance of conſolidated paſte. They fallow for wheat, and manure the fallows in June, with long dung almoſt in the ſtate of ſtraw; a me-

thod they contend warmly for; thinking that a greater degree of putrefaction would be loſs of quantity and virtue. But there is a circumſtance which ſeems in fact much to condemn this method; it is, that while the wheat crops are to be ranked among the fineſt in France, and would indeed make a capital figure in England, the oats and barley are wretched, indeed (ſoil conſidered) below contempt. Does not this ſeem to prove, that the expoſition of the manure, through the year of fallow, to the ſun, exhauſts it to the amount of the benefit which one crop would receive from it, and that the wheat has it at ſecond hand, and the ſpring corn at the third.

ALSACE.—*Straſbourg.*—Gypſum uſed as a manure for clover with ſucceſs; does beſt on clayey lands; there are mills for pounding it. It is ſaid to laſt good for ſome time; 2 or 3 boiſſeau, of 30 lb wheat per arpent of 24,000 feet between two and three buſhels per Engliſh acre). If a quantity is uſed, it ſpoils the land. What myſteries are theſe about this manure!

Befort.—Manure with blue marl.

To Iſle.—The dunghills here are the neateſt ſpectacles I have any where ſeen; the walls of them are twiſted bands of ſtrow, cloſe and regular as a bee-hive, and ſome are covered at top with leaves and branches of trees to exclude the ſun. Admirable! Deſerving univerſal imitation.

DAUPHINE.—*Loriol.*—Box, in this country, is cut on the mountains for manuring vines, by burying it freſh at their roots. For mulberries alſo it is excellent. Three trees were planted at the ſame time, and in the ſame ſoil, one with box, and the other without, and there is now no compariſon between them.

M. Foujas de St. Fond has tried gypſum, on a large ſcale, on ſandy land, for ſainfoin, with great ſucceſs.

PROVENCE.—*Salon to St. Canat.*—Dead olive branches and cuttings, are piled up with clods and rubbiſh for burning, as in Catalonia.

Tour d'Aigues.—Paring and burning is practiſed every where; and, as in Ireland, in corners, holes, waſtes, and even ditches, to make heaps of manure for their cultivated lands. They are now (September) burning every where. The common opinion is very much againſt it; but the Preſident remarks, that it has been practiſed here uninterruptedly, probably, for 2000 years, yet the land is no worſe than it has always been.

The importance of manuring is well underſtood in many of the French provinces; where faults are to be found, it is more for exhauſting the benefit as faſt as poſſible, than for want of knowing the operation and effect. The beſt farmers in England ſpread manures for ameliorating crops, in order that the hoe or the ſcythe may cut off the weeds that are apt to riſe in conſequence; and as ſuch crops ſupport cattle, the more manure is ſpread the more manure is made; it is

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in arithmetical progreſſion: on the contrary, when it is given for exhauſting crops, as wheat or rye, the benefit is ſoon exhauſted, and the increaſe, ſo valuable in the œconomy of a farm, does not take place. By means of ſpreading the dung for thoſe crops that ſupport cattle and ſheep, the live ſtock of a farm may be always gradually increaſing; and it is impoſſible they ſhould increaſe, without the farm improving, and corn itſelf augmenting by the ratio of the product ariſing.

CHAP. XX.

An Engliſh Farm eſtabliſhed in France.

AMONG the moſt intereſting obſervations which the Duke of Liancourt had made, in the various viſits he paid to England, was that of the ſuperiority to which the induſtry of that kingdom was carried beyond the practice of France; and above all, to what a degree of perfection agriculture had attained, founded on experiment, and manifeſt in an infinitely greater production of corn and of live ſtock than is to be found in almoſt any other country, extent and quality of ſoil conſidered. Impreſſed with this fact, he had long cheriſhed the hope of introducing into his own country this ſource of increaſing wealth, flowing as well from the augmentation of produce, as from that of the people employed to raiſe it; but ſenſible, at the ſame time, that the moſt uſeful innovations could be introduced by example only—a truth the more applicable to agriculture, from being practiſed by men of ſmall fortune, little or no education, and conſequently full of prejudices, and unequal to the purſuit of any practice, but that of the *beaten track*.—he determined to attempt, as ſoon as it was in his power, an eſſay of Engliſh agriculture; but as he was deſirous of having his example followed, it was neceſſary that theſe eſſays ſhould be ſo conducted as to enſure ſucceſs.

His friend, Mon. de Lazowſki's reſidence during three years, in England, whither he conſented to accompany the ſons of the Duke, facilitated theſe means. Monſ. de Lazowſki, whom I had the pleaſure of knowing intimately, acquired that knowledge in agriculture, which much inquiry, aſſiduous application, and frequent converſation with the beſt farmers, could give to a mind very capable of, and much accuſtomed to obſervation: he was likewiſe no

ſtranger to the projects of Monſ. de Liancourt; and in this inſtance, as on every occaſion, his unexampled friendſhip made him eager to ſecond his views.

In 1789, Monſ. de Liancourt, on becoming the proprietor of a large eſtate, ſituated at thirteen leagues from Paris, reſolved immediately to execute the plan he had ſo long projected: he accordingly engaged an Engliſh farmer to come over from Suffolk, with his family, and a common labourer; this Engliſh colony carried with it every kind of farming implement; they had with them likewiſe five oxen, a bull, and five cows, from Suſſex, to perpetuate that breed, if the country into which they were tranſported would admit of it; to theſe were added a Suffolk polled bull and five cows.

The farmer was placed in a farm that had hitherto yielded about two hundred pounds a year; the land was in ſome parts good, in others bad; it was ſo divided in quality and in ſituation, as to render one part fit for the reception of ſheep, and the other part for the feeding of cattle; theſe two objects were thoſe which Monſ. de Liancourt was moſt anxious to attain, in the agricultural ſyſtem he was about to introduce; becauſe they were moſt advantageous, in a country ſurrounded by great markets, and very near to that of Paris; he added a large extent of land to the farm, taken from his park, and from other farms, conſiſting of about eight hundred arpents; two hundred and fifty of which were appropriated to ſheep, and the reſt to the feeding of cattle; he deſigned to have made ſuch additions to each part, as would have enlarged the whole to fifteen hundred arpens; to which, in proceſs of time, he would have nearly dedicated the whole of his park. Whilſt the Engliſhmen were beginning their operations, and forming the labourers of the country to the uſe of the new ſort of plough imported from England, inſtructing the common workmen as to the conſtruction of the new implements, and teaching the women ſervants of the farm the management of the dairy, the making of cheeſe, &c. Monſ. de Liancourt had ſent two young labourers, out of the environs of Liancourt, to England, who, being placed by me with good farmers in my neighbourhood, qualified themſelves to replace, at a future day, the Engliſh family, in caſe theſe ſhould grow tired of living in France, or to aſſiſt them if, as Monſ. de Liancourt hoped, they were diſpoſed to remain. The artizans of Liancourt learnt to imitate the implements, the plough and the cart brought from England, and made them very well.

To the cows, from England, were added twenty-four more from Normandy and Switzerland; the whole herd, a very fine one, amounted, in 1792, to a hundred and five head, and hopes were entertained of increaſing the number to three hundred, and of ſupplying them completely with a ſufficiency of food. The young beaſts were not then of an age to allow of any deciſion being

being made, whether the produce of the Suffolk or of the Suſſex breed would beſt ſucceed, but the whole afforded the moſt flattering hopes.

With regard to the flock of ſheep—the Spaniſh ram croſſed with the ewes of Berry and the Spaniſh ewes, and the Berry ram with the Flemiſh ewes, were the two breeds deſigned to be eſtabliſhed and improved; an Engliſh ram from Romney Marſh was alſo croſſed with the Berry ewes, all of which anſwered perfectly well: the lambs were fine, but as this branch of buſineſs had been began later than the other, the proſpect of its ſucceſs, although well founded, could not be entirely aſcertained.

The lands had been put into excellent condition, in a country where incloſures were unknown; every field of the farm was incloſed by deep and broad ditches, with well planted hedges; gates were erected in all; the dry lands were irrigated, and the marſhy meadows drained, by cuts underground; old lands, for ages paſt, judged incapable of yielding any produce, were burnt and rendered fruitful; the buildings on the farm were modelled to the new ſyſtem, and to the management of the culture that was introduced. The two young French labourers were returned from England, and the Engliſh farmer (Mr. Reeve), an excellent one, and a very honeſt man, ſatisfied with his ſituation, with his ſucceſs, and with the treatment he met in the country, thought only of continuing his employment, of increaſing his ſucceſs, and of ſeconding the intentions of his maſter. He was ordered to keep an exact and daily regiſter of all the buſineſs tranſacted on the farm, to ſhow it to whoever choſe to ſee it, and to anſwer all their queſtions with truth, mildneſs, and patience, but not to intice any perſon to undertake an imitation of the Engliſh method of farming; Monſ. de Liancourt thinking, that in every innovation, nothing leſs than ſelf-conviction ought to actuate thoſe who attempt it; and that by raiſing their expectations too highly they riſk the ſucceſs, which ſooner or later would not fail to attend their efforts. The cows of the diſtrict were covered by the bulls of the farm whenever they were brought, and the produce from them was already found, by the people of the country, to be much finer; the culture of turnips and of cabbages, for the feed of cattle, abſolutely unknown before in the diſtrict, began to be introduced; ſome proprietors incloſed their fields; ſeveral others had made, for their own uſe, farming implements after the Engliſh model, and found them anſwer beſt the purpoſe; many more hands were employed, of all ages and of both ſexes, in the farms; the Engliſh were received with pleaſure in the country, and treated in the moſt cordial manner; every thing ſucceeded to the utmoſt wiſh, and theſe ſucceſſes were, in great meaſure, due to the indefatigable and enlightened vigilance of Monſ. de Lazowſki, whoſe heart is equal to his capacity.

The

The events of the 10th of Auguſt added the cruel neceſſity of forcing Monſ. de Liancourt to renounce the hope of being uſeful to his country, as he had every reaſon to expect from theſe eſſays, to the other misfortunes he has experienced from the ſame cauſe.

Agriculture was not the only object of improvement he ſought to tranſport out of England into his country; he had likewiſe began to eſtabliſh the ſpinning of cotton, a manufactory of linen, a ſtocking manufactory, and the fabrication of cards; he had engaged the different artiſans in each branch from England, conſtructed buildings, and ſacrificed his gardens to theſe various eſtabliſhments; which, in 1792, already employed more than a thouſand people in the diſtrict of Liancourt; and, although yet far from having attained to perfection, they were productive of the moſt ſalutary effects to the lower ranks of people. As theſe manufactures have remained in the poſſeſſion of an Iriſhman, whom he had taken as an aſſociate, Monſ. de Liancourt conſoles himſelf with the idea, that the conſiderable ſums of money it coſt him to form theſe eſtabliſhments, were not wholly loſt to the country he was ſo anxious to enliven and to enrich by induſtry. Theſe eſtabliſhments naturally recall to mind what the Marquis de Mirabeau, in his book *De l'Ami des Hommes*, relates of the Duke de la Rochefoucauld, the granfather of Monſ. de Liancourt, having, in 1754, made a ſacrifice of one of the fineſt orongeries in France, and part of his park, to the inhabitants on his eſtate at Verteuil, in Angoumois, for the purpoſe of planting mulberry-trees, and raiſing of ſilk-worms, the cultivation of which was at that time ſcarcely known at Verteuil. This benevolent man had, before his death, the conſolation of ſeeing many good intentions crowned with ſucceſs; Monſ. de Liancourt, on the contrary, has the ſenſible mortification of ſeeing the good he intended to do, and which he had ſo happily began, deſtroyed by thoſe very people for whom it was undertaken; and who, by a fatal error, in thinking to hurt him, whoſe ſole endeavours tended to their advantage, have hurt themſelves, by deſtroying an eſtabliſhment that would have been a germ of national proſperity, and was unique in France.

The deſtruction brought upon ſuch eſtabliſhments, by revolutionary anarchy, is one, among a thouſand leſſons that teach the danger, to the deareſt intereſts of the people, flowing from popular commotions. Little more remains of theſe agricultural eſtabliſhments, than the merit of having made them a ſource of heart-felt ſatisfaction to a worthy and patriotic individual. That he may be ſpeedily reinſtated in a property, which he lived only to improve and to adorn, is the ſincere wiſh of that gratitude and friendſhip which pens this faint acknowledgement of merit.

ITALY.

NOTES

ON THE

AGRICULTURE OF LOMBARDY.

ONE of the moſt intereſting countries in Europe, for the practice of various branches of rural œconomy, merits a much cloſer and more minute detail than is poſſible for a traveller to give, who, from the nature of his purſuit, can do no more than retain a few of the principal features, to point out thoſe circumſtances which demand the moſt ſtudious attention: ſome of theſe are ſo valuable, that years would not be miſpent in acquiring a complete knowledge of them. On every ſubject, except what reſpects directly practical huſbandry the ſmall number of my inquiries is of leſs conſequence, while the pen is in the hand of my eſteemed friend, Mr. Profeſſor Symonds, whoſe elegant memoirs upon Italian agriculture * are fraught with information of unqueſtionable utility. I ſhall arrange the minutes I made in Lombardy under four heads, which will include all that I think worthy of the reader's conſideration.

I. General circumſtances of the huſbandry.

II. The management of graſs lands.

III. The management of arable lands.

IV. The encouragement or depreſſion which agriculture receives from various cauſes.

* Inſerted in the *Annals of Agriculture.*

CHAP. I.

General Circumſtances of the Huſbandry of Lombardy.

LOMBARDY is one of the richeſt plains in the world; for fertility of ſoil, united with the uſe that is made of it by watering, it much exceeds every other in Europe; but for mere natural fertility, I take the plain which extends from Holland to Orleans to conſiſt of a richer ſoil, and it is alſo of a greater extent. From the foot of the Alps, near Suza, to the mouths of the Po, are about two hundred and fifty miles; and the breadth of this noble plain varies from fifty to one hundred, containing, probably, about fifteen thouſand ſquare miles. The Po bends its ſtately courſe through the whole extent, its branches ramifying, in innumerable ſtreams, from the Alps on one ſide, and from the Apenines on the other; the prodigious extent of the former range, covered with eternal ſnows, afford a vaſt ſupply of water; preſerved moſt conveniently in thoſe immenſe reſervoirs the Lago Moggiore, Lugano, Como, Iſeo, Guarda, whoſe waters are the origin of the greater part of the irrigations of Lombardy. But in the Appenines there are no ſuch reſervoirs, nor any extent of ſnow ſimilar to that of the Alps. Thus the ſpace watered to the north of the Po, is probably ten times more conſiderable than that to the ſouth of the ſame river.

The ſoil of Lombardy is, wherever I viewed it, either ſand, gravel, or loam. I met with none, or at leaſt, with very little clay (ſpeaking always as a farmer, and not as a naturaliſt), and no chalk.

Under this head I ſhall inſert the notes I took concerning—1, ſoil; 2, climate; 3, incloſures; 4, farms and tenantry; 5, rent and price of land.

SECT. I.——OF SOIL.

PIEDMONT.

After paſſing the Alps from Niece, and deſcending towards Coni, in the level and fertile vale of Piedmont, the ſoil is every where a rich ſandy loam, with ſmall appearance of clay. Wherever rivers, or rather torrents are found, we ſee great tracts of ſtone and ſhingle, which were brought by the water from the mountains. The Dora Baltia offers this ſpectacle; from that river to Ciglione, are plains and waſts of gravel. The rice country of Verceil is a ſandy loam. The diſtrict of the Seſia is gravel. The Teſin is the ſame. The gravels of Piedmont are all full of round ſtones, from the ſize of an egg to that of twice a man's fiſt.

Milanese.

In the way from Milan to Pavia, great tracts of gravel, which would not be very valuable without water. To the north of the city, about Mozzata, &c. they have two ſoils chiefly,—a ſtrong loam, a little clayey, blackiſh, and free from ſtones: and a gravel mixed with loam, ſome blackiſh, dries quickly, and always looſe. The Lodizan is a loamy ſand, or loamy gravel *.

State of Venice.

The whole way from Vaprio to Verona, there are very great tracts of gravelly loams; there are alſo ſome ſandy ones; the ſoil naturally is not deep or rich, though there are tracts that merit both thoſe epithets. The territory of Verona is, in general, indifferent, and would not be of great value, were it not for water, and much induſtry. The beſt meadows and rice-grounds are not more than nine inches deep on ſtone and gravel. For ſome miles from Verona, the ſtoney gravel continues; but towards Vicenza, much fine red and brown, deep, friable, ſandy loam, with few or no ſtones.

Ecclesiastical State.—Ferrarese.

In the Ferrareſe, between Paſſo Siene and Bologna, the ſoil is two feet deep; of a brown ſandy loam, with a yellowiſh hue, under which is one foot of ſand, and then blue clay, apparently ferruginous. In cutting, not long ago, through a field, for raiſing a bank, they met with a heap of antient bricks, five feet deep. From Ferrara to Bologna, the ſoil is, to all appearance, the richeſt I ever beheld; deep, friable, and with that degree of tenacity, which marks great fertility; it ſeems to be entirely a depoſition of waters, that have brought thoſe fine particles which are held ſuſpended, and which render that fluid turbid: thoſe almoſt impalpable particles which are long in ſubſiding.

Tuscany.

All I ſaw of this territory, is a rockey ſtone braſh, or gravel. The loams are compounds of it, with more or leſs vegetable mould; I ſaw ſcarcely any tracts, large enough to be worth mentioning, that are exceptions. It is, upon the whole, though improveable, not a fertile ſoil; and, if olives were not well adapted to it, would be productive of little beſide ſheep-walk; to which ani-

* The Lodizan ſoil is termed, by the Italian writers, *oriola*; a blackiſh ſand, mixed with clay. The Gera d'Adda of *geriva*, a gravel, compoſed of ſand and reddiſh gravel, with a little clay. The Cremoneſe, a red feruginous earth. Sand and gravel every where. *Atti di Milano*, tom. ii. p. 163.

mal, all I ſaw of this country, is admirably adapted, and would, I doubt not, produce as fine wool as Spain itſelf.

Modena and Parma.

A rich ſandy or gravelly loam is predominant through theſe dutchies; in many tracts it is deep, moiſt, and friable, as I ſaw in the lands which were receiving their autumnal preparation for beans in the ſpring. In ſome diſtricts it is of a firm texture, but not clay. Much the ſame ſoil, but not equally deep, is found in the ceded provinces of Vogara, Tortona, and Alexandria; but parts of the laſt more tenacious, and to be ranked among the ſtiffeſt I met with in Lombardy.

SECT. II.—CLIMATE.

On the climate of Lombardy, Mr. Profeſſor Symonds is ſo full and ſatisfactory, that the reader can be no where ſo well inſtructed.

Piedmont.

The great complaint in Piedmont, is the exceſſive heat in ſummer; equal, I was aſſured, to almoſt any that is felt on the globe, and of a ſuffocating quality; while the froſts in winter are as ſevere, in the contrary extreme. The peſtiferous climate of Sardinia is known to every body; though between 39 and 41 degrees latitude; in the ſouthern part of the iſland, they are not forwarder than in the Milaneſe: they cut their corn in the north part in July: in the Milaneſe before the end of June *.

Milanese.

The moſt remarkable circumſtance in the climate of the Milaneſe, is the mildneſs and warmth of northern and mountainous tracts, and the ſeverity felt in the plain. This fact is found particularly around the lake of Como; upon all the weſtern coaſt of that lake, which is about forty miles long, the *agrumi*, as the Italians call oranges, lemons, &c. are found, expoſed to the open air, in good perfection; yet the whole of the lake is bounded by the high Alps, which, immediately to the north, are covered with eternal ſnows. On the rich plain of Milan, and thence to the Apenines, no ſuch plant can be left expoſed; olives are not ſeen, and oranges, lemons, and bergamots, muſt be covered in winter. Theſe *agrumi* are found chiefly on the weſt coaſt of the lake, but ſome are ſcattered on the eaſtern. It is the ſhelter afforded by the mountains, in peculiar poſitions, that has this effect. The ſame circumſtance is found in the Lago Maggiore, where the famous Borromean Iſlands are covered with *agrumi*.

* *Riſorimento della Sardegna*, tom. i. p. 155.

In

In all the Milaneſe, dry ſummers for corn (I believe it is the ſame every where in Europe), are moſt productive *.

In an experiment made at Vicenza, in the Venetian State, by the Accademia Agraria of this city, they ſowed wheat October 18, 1787; came up the 28th; the ears appeared May 2, 1788; the flowers May 13; reaped June 19.

TUSCANY.

I was at Florence the beginning of November, and the ice was four inches thick; a ſeverity never yet known in England. The Engliſh were, at the ſame time, ſkating at Rome.

One-fifth of all the productions of the earth are calculated to be deſtroyed by hail and other accidents.

PARMA.

In the management of the vines in the Parmazan, there is a practice, which ſhews the conſtant dread of ſevere froſts. All the vines are now (in November) turned down, and the end ſhoots buried † in the earth to preſerve them; yet in a wet ſeaſon they ſuffer by this treatment, as well as in all ſeaſons, by being ſtript from the trees, in order to undergo this operation.

Mr. Profeſſor Symonds, in the excellent paper quoted above, removed the common erroneous idea of the fine climate of Italy: I made many inquiries con-

* The ſame remark was made long ago, in 1540;

MDXL Extructum
Annus his biſſextilis fuit, et luminare majus
Fere totum eclypſavit
A ſeptimo idus Novembris ad ſeptimum uſque Aprilis idus
Nec nix nec aqua viſa de cœlo cadere
Attamen, præter mortalium opinionem, Dei clementiâ,
Et meſſis et vindemia multa.

It is extraordinary, that in 1779 there was an almoſt total eclipſe of the ſun, followed by a fine winter, the ſame as in 1540. There was a ſmall eclipſe on the 7th of April, 1540, but an almoſt total one the 15th. of April, 1539, and which, for quantity and duration, was very much like that the 24th. of June, 1779. The crop was abundant, as it appears by the prices of the year, in the Ledger of the Ciſterſian Monks. Wheat, 1539, the moggia, 5 liv. In 1540, ditto, 4 liv. In 1541, ditto, 6 liv. The ducat of gold, or zecchin, then at 5 liv. 15 *ſ.* Campi (*Iſtoria di Cremona, anno* 1540) ſpeaks of the extraordinary dryneſs of this year, the abundance of crops, and ſubjoins, that the corn was cut the middle of May, and the vintage the beginning of Auguſt. This is the harveſt near forty days ſooner than at preſent, and the vintage two months. *Opuſc. Scel.* tom. ii. p. 136.

† The ſame practice was known among the antients. See *Strabo*, lib. vii. and *Quint. Curt.* lib. vii. c. 3.

cerning

cerning the leading facts, and have every reaſon to believe that it is, in point of health and agreeableneſs, one of the worſt climates in the world: with the views of a farmer, however, it muſt be confeſſed, that the productions which the whole peninſula owes to its climate are very valuable; to omit ſpeaking of Sicily or Naples, I may remark, that planting the poor braſhy hills of Tuſcany with olives is an advantage unequalled by any thing to be met with in the north of Europe; that the produce of ſilk throughout Lombardy is an object of the firſt importance—That rice is found to be an article of almoſt unrivalled profit. —That the productive ſtate of the meadows is indebted almoſt as much to the heat of the ſummers, as to the plenty of water; and, for any thing I know to the contrary, the admirable quality of the cheeſe alſo. Theſe are all objects of great magnitude, and entirely derived from climate.

SECT. III.—INCLOSURES.

Piedmont.

It is not very eaſy, in many parts of Piedmont, to pronounce, on a ſuperficial view, whether the country be open or incloſed; but, on a nearer inſpection, the greater part by far found to be incloſed; generally by ditches, and, in many diſtricts, with hedges alſo; which, in ſome places, are as complete as in the beſt Engliſh counties.

Milanese.

Much the greater part of this territory is incloſed, either with hedges or by ditches, which ſerve as conductors of the water uſed in irrigation. Theſe, in the Lodizan, and other diſtricts to the ſouth of Milan, are planted ſo thickly, with willow and poplar pollards, that the country looks every where like a wood.

Venetian State.

Much of the country, from Bergamo to Breſcia, is very thickly incloſed with hedges. From Breſcia to the Lago di Guarda it is the ſame; but from thence to Verona not equally ſo.

Ecclesiastical State—Bologna.

The whole Bologneſe is incloſed. They make and plaſh their hedges with the niceſt attention: made with dead ſtakes, about four feet high, and tied in croſs lines, with great neatneſs and ſtrength. This care is, however, exerted for the boundary of the farm only; ſubdiviſions of this kind are rare.

TUSCANY.

There are no rights of commonage in all Tuſcany; thanks to the wiſdom of Leopold; every man has a right to incloſe his property as he pleaſes. The Appenines, croſſed from Belogna to Florence, are, however, moſtly unincloſed, and almoſt waſte.

MODENA.

From the city of Modena to Reggio, the incloſures are very neatly formed, of well made hedges without any ugly ſprawling ones; but all either trimmed, or made ſo often, that they are not ſuffered to ſpread.

PARMA.

To Firenzuola all the country is incloſed.

PIEDMONT.—*Tortoneſe.*

The fences from the Dutchy of Modena hither are greatly declined: there are ſome hedges every where; but many large fields all the way, with only bad ditches or banks.

Lombardy, upon the whole, muſt be conſidered as an incloſed country, and much of it cloſely ſo. It would indeed be a glaring abſurdity to keep land ſo extremely valuable in an open ſtate. The importance of incloſing is well underſtood, and where not practiſed in perfection, it ariſes from cauſes that form exceptions rather than effect the general rule.

SECT. IV.—OF FARMS AND TENANTRY.

The predominant feature in the farms of Piedmont is *metayers*, nearly upon the ſame ſyſtem which I have deſcribed and condemned, in treating of the huſbandry of France. The landlord commonly pays the taxes and repairs the buildings, and the tenant provides cattle, implements, and ſeed; they divide the produce. Wherever this ſyſtem prevails, it may be taken for granted that a uſeleſs and miſerable population is found. The poverty of the farmers is the origin of it; they cannot ſtock the farms, pay taxes, and rent in money, and, therefore, muſt divide the produce in order to divide the burthen. There is reaſon to believe that this was entirely the ſyſtem in every part of Europe; it is gradually going out every where; and in Piedmont is giving way to great farms, whoſe occupiers pay a money rent. I was for ſome time deceived in going From Nice to Turin, and believed that more of the farms were larger than

than is really the caſe, which reſulted from many ſmall ones being collected into one home-ſtead. That belonging to the Prince of Corignan, at Billia Bruna, has the appearance of being very conſiderable; but, on inquiry, I found it in the hands of ſeven families of metayers. In the mountains, from Nice to Racconis, however, they are ſmall; but many properties, as in the mountains of France and Spain.

The Caval. de Capra, member of the Agrarian Society, aſſured me, that the union of farms was the ruin of Piedmont, and the effect of luxury; that the metayers were diſmiſſed and driven away, and the fields every where depopulated. I demanded how the country came to have the appearance of immenſe cultivation, and looked rather like a garden than a farm, all the way from Coni? He replied, that I ſhould ſee things otherwiſe in paſſing to Milan: that the rice culture was ſupported by great farms, and that large tracts of country were reduced to a deſert. Are they then uncultivated? No; they are very well cultivated; but the people all gone, or become miſerable. We hear the ſame ſtory in every country that is improving: while the produce is eaten up by a ſuperfluity of idle hands, there is population on the ſpot; but it is uſeleſs population: the improvement baniſhes theſe drones to towns, where they become uſeful in trade and manufactures, and yield a market to that land, to which they were before only a burthen. No country can be really flouriſhing unleſs this take place; nor can there be any where a flouriſhing and wealthy race of farmers, able to give money rents, but by the deſtruction of metaying. Does any one imagine that England would be more rich and more populous if her farmers were turned into metayers? Ridiculous. The intendant of Biſſatti added another argument againſt great farms; namely, that of their being laid to graſs more than ſmall ones; ſurely this is a leading circumſtance in their favour; for graſs is the laſt and greateſt improvement of Piedmont; and that arrangement of the ſoil which occaſions moſt to be in graſs, is the moſt beneficial. Their meadows are amongſt the fineſt and moſt productive in the world. What is their arable? It yields crops of five or ſix times the ſeed only. To change ſuch arable to ſuch graſs, is, doubtleſs, the higheſt degree of improvement. View France and her metayers—View England and her farmers; and then draw your concluſions.

The Milanese.

Wherever the country (that I ſaw) is poor and unwatered, in the Milaneſe, it is in the hands of metayers. At Mozzata the Count de Caſtiglioni ſhewed me the rent book his *intendant*, (ſteward) keeps, and it is a curious explanation of the ſyſtem which prevails. In ſome hundred pages I ſaw very few names without a large balance of debt due to him, and brought from the book of the preceding year:

year: they pay by ſo many moggii of all the different grains, at the price of the year: ſo many heads of poultry; ſo much labour; ſo much hay; and ſo much ſtraw, &c. But there is, in moſt of their accounts, on the debtor's ſide, a variety of articles, beſide thoſe of regular rent: ſo much corn, of all ſorts, borrowed of the landlord, for ſeed or food, when the poor man has none: the ſame thing is common in France, wherever metaying takes place. All this proves the extreme poverty, and even miſery, of theſe little farmers; and ſhews, that their condition is more wretched than that of a day labourer. They are much two numerous; three being calculated to live in one hundred pertichi, and all fully employed by labouring, and cropping the land inceſſantly with the ſpade, for a produce unequal to the payment of any thing to the landlord, after feeding themſelves and their cattle as they ought to be fed; hence the univerſal diſtreſs of the country. Thoſe who are advocates for ſmall farms, ſhould come hither, and ſee how they infallibly generate poverty in every cottage. The ſurplus of population is not demanded by manufactures, or by towns; the increaſe, therefore, is only the diviſion of a pittance of food amongſt many mouths inſtead of a few. It is impoſſible to prohibit procreation, or to force emigration; but it is in a landlord's power to introduce, gradually and prudently, a different ſyſtem—to occupy a large farm himſelf, cultivated accurately, by day-labourers, of all ages and ſexes, well paid; and if this be not ſufficient, to eſtabliſh a manufacture of ſome groſs and ſimple kind, to employ the population already exiſting; and, by a gradual alteration in his farms, to proportion the food to the mouths that are to eat it *. There is at preſent an inducement to ſuch a change, that ought to weigh very ſeriouſly: the example of the French revolution will ſpread, and will be much more apt to take effect in countries where there is nothing but the great land owner and the poor cottager, than in others where there are intermediate ranks of men of ſubſtance, who have an intereſt in preſerving public order. What a temptation to confuſion and rebellion is it, to have a country full of miſerable metayers, all deeply indebted to the ſeigneur? Nine-tenths of the people, in ſuch a caſe, have an immediate iutereſt in burning his caſtle and his account-books, for he ſtands ſingle, on one hand, againſt all the people, ſwarming on the other; but in the watered plain, where the farms are large and not populous, from ſo much being in graſs, there is every where a race of wealthy farmers, who have an intereſt in keeping the people quiet,—who are united with the landlord.—and who, paying their men in money, without theſe long and dangerous accounts, have not the temptation to revolt; or even if they were tempted, they would not have the diſproportion of numbers to render it equally dangerous. The great object of men who have

* But inſtead of the number of farms decreaſing, they are increaſed, as we learn from Sig. Lavizari, *Annot. ſul Mitterpacher*, tom. i. p. 221.

property, is at preſent to ſecure it—and they can have no ſecurity, while they fill the country, by metaying, with ſwarms of a ſtarving and indebted peaſantry. It ſhould be remembered, that the miſchievous confuſions, plundering, and burnings, in France, were not in the Pays de Beauce, nor in Picardie, nor in Artois, where metayers are unknown, and the farms large; but in the Maçonnois, in Breſſe, in Sologne, where all are in the hands of poor miſerable metayers; an inſtance, ſurely, expreſs to the purpoſe; and which ſhould have its weight with Italian landlords. But to work a change in this pernicious ſyſtem, demands a reſidence on their eſtates in the country, inſtead of abandoning them to the rapacity of ſtewards; it is not by living in the frippery of great cities, that their landed property is to be arranged on ſafe principles *.

In the watered parts of the Milaneſe, great and rich farmers are found. Here are the particulars of a farm, I viewed, between Milan and Pavia; viz. 3100 *pertichi*; 1600 of rice; 200 flax; 450 perennial graſs; 450 clover; 400 arable crops, wheat, rye, maiz, millet, oats, &c.; 12 horſes; 8 oxen; 55 cows; 2 bulls; 40 labourers; rent 20 liv. the pertica; the whole capable of being watered. And at Codogno the following are the particulars of one, where 100 cows are kept: 2000 *pertichi*; 100 cows; 1 cazaro; 1 ſotte cazaro; 6 others; 9 for corn; 1 agent; 1 guard againſt thieves, and thoſe who ſteal water; 1 waterman. To ſtock ſuch a farm 50,000 liv. neceſſary. By means of ſuch farms they have rich farmers; ſome worth 100,000 liv. The general idea of profit, in theſe dairy diſtricts, is 10 to 15 per cent.; ſome dairy farms are occupied by proprietors, but the number is inconſiderable.

VENETIAN STATE.

All the lands in the Breſcian and Veroneſe territory are let at half produce, *à la meta*; even vines: but ſome meadows are uſually reſerved, and alſo woods. The proprietor pays the land-tax, and the farmer provides live ſtock, and pays the taxes on it.

Sig. Locatelli has a farm of 100 campi, within two miles of the city, which yields him 250 zecchini nett; this is ſomething more than 30s. an acre. He has alſo another farm more diſtant, of 600 campi, which yields 650 zecchini nett; on which there are 8 cows, 22 oxen, and 150 ſheep.

In the Vicentine †, rent, when calculated in money, $2\frac{1}{2}$ zecchini per campo. They have farms ſo large as 2000 campi.

* This whole paſſage is left as originally written; before French horrors rendered French politicks objects of deteſtation rather than example.

† Particulars of a farm of 120 campi: 20 of meadow, not watered; 90 of corn; 10 of clover; 15 oxen and young cattle; 3 cows; 2 horſes; 4 hogs; 7 men; 4 ditto, with oxen; 4 women; 2 children.

In

In the Paduan, 100 campi are a large farm; common 60; ſmall 40; and they reckon ſmall ones the beſt cultivated; if this be fact, and not a matter of opinion in the gentleman, my informant, it ſhews that their huſbandry muſt certainly be eſteemed bad; it is, however, queſtionable, for the reaſon added was, that there were more people on ſmall farms; a ſure proof that the progreſs of improvement has not been carried far. To ſtock a farm, of a hundred campi, 1000 ducats are neceſſary, reckoning the ducat at 3s. which is not exact; this is a poor ſtock, for it does not exceed 33s. the Engliſh acre. The arrangement of the farms, in the Paduan, may be gueſſed at, in ſome meaſure, from the following particulars; there are found, in the whole diſtrict, 288,300 ſouls; 49,943 cows and fatting cattle; 41,000 plough oxen; 102,000 ſheep; 16,598 hogs; 731 mules; 2381 aſſes. One Profeſſor informed me, that, in his opinion, the great miſchief of the country is, that of great land proprietors letting their eſtates to undertakers or middle-men, who will hire to the amount of 10,000 ducats a year; and in re-letting to farmers will ſqueeze them ſo, that they cannot live, to the great degradation of the country. Another profeſſor ſaid, that the diſtrict of Padua is not ſo well cultivated as the Vicentin, by reaſon of the greater poverty of the farmers and peaſants, who are miſerable, and have no power to make the land yield well. Indeed I learned, from very good authority, that the Paduan is not equal to the Vicentin, except in the mountains, where the peaſants are much more at their eaſe than in the plain.

Ecclesiastical State—Bologna.

Eſtates here are very generally let to middle-men, who relet them to the farmers at half produce, by which means the proprietor receives little more than one-half what he might do on a better ſyſtem, with a peaſantry in a better ſituation. The whole country is at half produce; the farmer ſupplies implements, cattle, and ſheep, and half the ſeed: the proprietor repairs. Silk, and even wine on the ſame tenure.

Particulars of a farm (Sig. Bignami's) of 600 tornature; 360 on the hills; the reſt on the plain: 6 metayers; 36 working oxen; 12 cows: 20 young cattle; 100 ſheep. Produce, 2000 corbi of wine; 3 to 400 corbi wheat.

Tuscany.

Letting lands, at money rent, is but new in Tuſcany; and it is ſtrange to ſay, that Sig. Paoletti, a very practical writer, declares againſt it *. A farm in Tuſcany is called a *podere:* and ſuch a number of them as are placed under the management of a factor, is called *fattoria*. His buſineſs is to ſee that the lands

* *Penſieri*, &c. p. 162. 164.

are managed according to the leaſe, and that the landlord has his fair half. Theſe farms are not often larger than for a pair of oxen, and eight to twelve people in one houſe; ſome 100 pertichi (this meaſure is to the acre, as about 25 to 38), and two pair of oxen, with twenty people. I was aſſured that theſe metayers are (eſpecially near Florence) much at their eaſe; that on holydays they are dreſſed remarkably well, and not without objects of luxury, as ſilver, gold, and ſilk; and live well, on plenty of bread, wine and legumes. In ſome inſtances this may poſſibly be the caſe, but the general fact is contrary. It is abſurd to think that metayers, upon ſuch a farm as is cultivated by a pair of oxen, can be at their eaſe; and a clear proof of their poverty is this, that the landlord, who provides half the live ſtock, is often obliged to lend the peaſant money to enable him to procure his half; but they hire farms with very little money, which is the old ſtory of France, &c.; and indeed poverty and miſerable agriculture are the ſure attendants upon this way of letting land. The metayers, not in the vicinity of the city, are ſo poor, that landlords even lend them corn to eat: their food is black bread, made of a mixture with vetches: and their drink is very little wine, mixed with water, and called *aquarolle*; meat on Sundays only; their dreſs very ordinary. Yet in all theſe particulars they were in a worſe ſituation before the free corn trade. The richeſt peaſants are in the Valdichiano. The moſt common agrement is, for the landlord to furniſh all the cattle and ſheep, and to pay the taxes, except the capitation on the peaſants family of 3 liv. for all above three years old. In a conſiderable *fattoria* of 18 poderi, at Caſtello Villa Bali Martelli, the largeſt is 200 ſtiori (36 acres, at $5\frac{1}{2}$; $28\frac{1}{2}$, at 7), and 70 the ſmalleſt. Particulars of one of 190 ſtiori; 1 pair of oxen; 2 calves; 1 horſe; 1 mule; no cows, ſheep, or hogs; 14 people, of all ages and ſexes; taxes, before the grand Duke's redemption, 80 pauls, now 15; tithes 15 pauls, half paid by landlord, half by peaſant; this is 6s. 8d. in the whole for about 30 acres. Produce corn, 180 ſcudi; ſilk, $6\frac{1}{2}$; wine, 58; oil, 60; in all 85l.; the half, or 44l. is the landlord's receipt for theſe articles, or above 1l. 5s. per acre, at $5\frac{1}{2}$ ſtiori to the Engliſh acre, and 1l. 11s. if at 7. No ſmall proprietor.

Villamagna.

Sig. Paoletti, rector of this pariſh, and author of ſome valuable works on agriculture, which I have had occaſion to quote, was ſo obliging as to give the following detail of the 3 poderi belonging to his living, from which the arable œconomy of this part of Tuſcany will be well underſtood.

Three

Three Poderi; three Families.

Seed ſown.—48	ſtaji of wheat	——	168 *ſtiori of land.*
3	ditto vetches	——	$7\frac{1}{2}$
24	ditto beans	——	28
6	ditto oats	——	10
Artificial graſſes; viz. clover, great millet, vetch, and oats, all for forage	- -		24
Wood,	- -		283

The ſtajo of wheat, of 40 lb. Engliſh (52 lb. to 55 lb. Tuſcan), ſows $3\frac{1}{2}$ ſtiori, and yields eight or nine times as much; vetches four times the ſeed; beans three times; oats ſeven times; the wheat is a tolerable crop; all the reſt miſerable. If the farms, immediately under the eye of this able writer, yield no more in this *metà* ſyſtem, we may ſuppoſe the poverty of the common products; we have, on the worſt lands in England, no idea of ſuch crops as theſe of vetches, beans, and oats. There are further on the 3 poderi, 36 ſheep; 1 mule; 6 oxen; and 4 cows; alſo 50 barrels of oil, at 5 ſcudi; and 380 barrels of wine, at 10 liv. the barrel, vintage price, but at a year old 15 liv. or 16 liv.; in ſilk 25 ſcudi; and in wood 10 ſcudi, for three-fourths of the woods are in a ſtate of deſtruction. Theſe poderi are let *a la metà*; repairs are done by the proprietor; live ſtock belong to the incumbent, and neither to the church nor to the peaſants; implements belong to the tenants; ſeed wheat, three-fourths to them, and one-fourth to the owner; of ſpring corn, all to the latter; alſo all ſorts that are put in with the vanga (ſpade), as the land is ſo much the better laboured. Let it be remembered, that the ſpade being preferred to the plough, is the moſt deciſive proof that tillage is in a ſtate of mediocrity, if not barbariſm.

MODENA.

In the mountains there are many peaſant proprietors, but not in the plain. A great evil here, as in other parts of Lombardy, is the practice of the great lords, and the poſſeſſors of lands in mortmain letting to middle-men, who re-let to metayers; under which tenure are all the lands of the duchy. The tenant furniſhes one-half of the cattle, and the landlord one-half. To Reggio the number of ſcattered houſes very great; good; and with neatly hedged home-ſtalls: apparently there is not a labourer's houſe in all the country; all metaying farmers.

PARMA.

Parma.

Appearances from Reggio to this place are much inferior to thoſe from Modena to Reggio; the fences not ſo neat; nor the houſes ſo well built, white, or clean. All here metayers; the proprietor ſupplies the cattle, half the ſeed, and pays the taxes; the peaſant provides the utenſils. In the whole dutchies of Parma and Piacenza, and indeed almoſt every where elſe, the farms muſt be very ſmall; the practice I have elſewhere noted, of the digging the land for beans, and working it up with a ſuperfluity of labour, evidently ſhew it: the ſwarms of people in all the markets announce the ſame fact; at Piacenza, I ſaw men, whoſe only buſineſs was to bring a ſmall bag of apples, about a peck; one man brought a turkey, and not a fine one. What a waſte of time and labour, for a ſtout fellow to be thus employed.

Savoy.

All the peaſants are proprietors. So long ago as theyear 897, lands were let on leaſe for twenty-two years, and not only for a payment of fruits or ſervice, as in all the northern parts of Europe, but partly at a money-rent. This ſhews how vaſtly more forward Italy was in thoſe early periods, than the reſt of Europe *.

It is ſaid, that in 1464 began the cuſtom of letting lands on a three years leaſe †.

SECT. V.——RENT AND PRICE OF LAND.

This, as I have endeavoured to explain already, in the caſe of France, is one of the moſt important inquiries in rural œconomy. The vulgar notion is, that nothing raiſes the value of land, but trade or manufacture. If the reſult of my travels, were only to produce facts ſufficient to overturn ſo falſe a theory, my time would not be altogether loſt.

Piedmont.—*Chentale.*

Land, in general, is ſold at 800 liv. or 900 liv. the *giornata*, which is to the Engliſh acre as 7440 is to 7929. (*Paucton*). At a diſtance from towns, 600 liv.

* ——Uncerto Donno, che cerca da P Abate di S. Ambrogio a nomo di livello, per ventidue anni, alcune terre nel Contado di Breſcia, ch'erano del moniſtero d'Orona; promettando di pagare a ficto cioè per fiſſa annuale penſione tanta quantità di generi, e di denaro. Secala modia decem, Seligine ſtaria duodecem, faba, &c. &c. Giulini goes on; "Qui chiaramente sì cômprende, che s'ingannò il Mattioli il quale credette, che la ſegale foſſe la ſiligine degli antichi." *Memorie della Citta e della Camp. di Milano.* Giulini, parte ii. p. 62.

† *Caronelli ſopra l'Inſtituzione Agraria della Cioventu.* 4to. 1789. P. 58.

to

to 850 liv. Some at 1000 liv. (53l. 6s. per Engliſh acre.) Good watered meads, 1000 liv. to 1200 liv.

Turin.

The price of land in the environs of Turin, as may be ſuppoſed, is very high. Four miles from the town, ſome is ſold, without water, at 1200 liv. the giornata: with water, it depends on quantity, and the value is immenſe. Land that has one hour a week of ſuch a ſtream as will water five giornata in that hour, ſells at 1500 liv. (79l. 19s. per Engliſh acre); if it waters two giornata, 1000 liv.; and if three, 1200 liv. And ſuch watering adds, at leaſt, one-third to the value of the land. At Cambiano, five miles from Turin, arable land ſells at 3000 liv. but this is uncommon. Near the town, ſuch prices as 3000 liv. and 4000 liv. are known. But, in general, arable watered, near Turin, ſells at 1000 liv.; at a diſtance, and not watered, 200 liv. to 550 liv. If a general average were to be made, of all ſorts of land, except the very fineſt, it would be about 500 liv. In regard to rent, but little is let for money; chiefly at one-half produce; but ſuch meadows as would ſell at 1000 liv. would let at 70 liv. to 75 liv. If two-thirds are arable, and one-third meadow, 40 liv. will be about the rent in good lands. In the territory of Turin, arable lets at 30 liv.

Vercelli.

Rice-grounds, 500 liv.; good wheat land, 800 liv.; watered meadow, 600 liv. and 700 liv. per giornata.

MILANESE.

The price varies from 15 liv. for the pooreſt waſtes, to 1000 liv. the pertica *; but from 600 liv. to 1000 liv. more common. As the livre is 7½d. Engliſh, 1000 liv.

* The difficulty I have met with, in aſcertaining the contents of a Milaneſe pertica, is ſtrange. Paucton, in his *Metrologie*, makes it to the Engliſh acre, as 0.14727 is to 0.7929, by which proportion, it ſhould contain 8090 feet, or about 5 1-3d perticas in an acre. Count Alexander Cicognо, in the Memoirs of the Patriotic Society of Milan, vol. ii. p. 304, ſays, that if ſeeds are planted at fifteen oncie one from another, 1479 will plant a pertica. As the oncia is two inches Engliſh, this makes 9243 Engliſh feet in a pertica.

Monſ. de la Lande ſays, that it takes more than five perticas to make an arpent de Paris: now as that arpent is to the Engliſh acre, 0,6694 is to 0,7929, there are conſequently 36,775 Engliſh feet in that arpent; at five perticas, it would conſiſt of 7355 Engliſh feet, or about ſix to an acre.

In the notes to the new edition of the *Venti Giornate* of Gallo (1775), this pertica is ſaid to contain 6152 French feet, which will not differ materially from De la Lande.

Count Carli, who was preſident of the ſupreme council of Finances at Milan, and has written intelligently on the *cenſimento*, ſays, *L'arpent di Francia ſta alla pertica Milaneſe come* 1¼ *ad uno proſſima mente.*

1000 liv. is 98l. 19s. 2d. per acre. It is uſually bought in ſuch a manner as to pay 2½ to 3 per cent. for the purchaſe-money.

Between Milan and Pavia, land rendered good by water, ſome ſells at 300 liv. to 500 liv.: at 300 liv. it lets at 12 liv.

From Milan to Mozzata, when you have paſſed the watered plain, which is in a few miles, the rent, in general, is not more than 4 liv. or 5 liv. the pertica. In every new leaſe, for a long period, ſuch as eighteen or twenty-one years, there is always an augmentation of rent in every part of the Milaneſe, and generally to a pretty conſiderable amount. There is alſo an undoubted augmentation in the ſpecie current in the country; and the prices of every thing have riſen at the ſame time that money has increaſed. It highly deſerves noting, by the politician, that as the Milaneſe ſubſiſts entirely by land produce, without trade (other than the ſale of that produce), and without manufacture, it is remarkable that it has experienced an advance in its proſperity, as well as countries that ſeem to engroſs both trade and manufacture; even at a period long after it had attained a height of cultivation and improvement, to which thoſe trading countries have little to oppoſe.

Lodi.

The beſt land near this place, 600 liv. the pertica (59l. 8s. per Engliſh acre); but farther off, 300 liv. to 350 liv. The *Spina*, a farm I viewed, belonging to the Caval. Don Baſſiamo Bona Noma, lets at 30 liv.; others at 25 liv.; but the common price 12 liv. to 15 liv. The beſt land and higheſt rent is all for cows.

Codogno.

Watered lands ſell at 300 liv. the pertica; and let at 10 liv. (19l. 9s. per Engliſh acre), nett rent, tenant paying cenſimento, &c.

mente. (Delle opere del S. Conte Carli. 8vo. 1784. Tom. i. p. 223.) The arpent of France being to the arpent de Paris as 48 to 32, there are 55,162 Engliſh feet in it, and in the pertica (at 1¼ to 1) 31,500 feet. But the ſame author ſays (p. 320) there are 4868 pertichi in a ſquare Italian mile; if ſo, there are 3628 in a ſquare Engliſh mile; this makes 5¼ and 1-6th pertichi to an Engliſh acre.

Finding ſo many contradictions, I judged it neceſſary to recur to different authority. The *oncia* of Milan is two Engliſh inches; and the meaſures thus arrange themſelves.

One pertica 24 tavoli.
One tavola 12 piedi.
One piede 12 oncie.

Of theſe the tavola and pertica are ſquare meaſures, the former containing 12 piedi *ſquare*; this makes 576 Engliſh feet, which, multiplied by 24, the reſult is 13,824 feet for a pertica, or *about* 3 1-6th to an acre; and by this eſtimate I ſhall calculate.

Rent

	liv.	ſ.
Rent nett, - - -	10	0
Water-tax for diſtribution, -	1	0
Cenſimento, - - -	2	5
Total rent, -	13	5

VENETIAN STATE—*Bergamo.*

Price of land near Bergamo, 80 ducats the pertica. The ducat is 8 liv. and 50 liv. the pound ſterling; and, if the editors of Agoſtino Gallo be not miſtaken, there are 6194 French feet in a pertica; on theſe proportions, land ſells at 78l. 8s. per Engliſh acre.

Breſcia.

The beſt ſells at 800 ſcudi; commonly from 300 to 500 ſcudi the jugero. This meaſure containing 4 pertichi, and the Engliſh acre 4¼, makes 400 ſcudi to equal 59l. per Engliſh acre, at 7 liv. the ſcudo. The beſt land, of 800 ſcudi, amounts conſequently to 118l. Rents, per jugero, 5 to 10 ſcudi; the mean, 7½ ſcudi, equals 22s. Engliſh acre.

Verona.

Land here commonly ſells at 70 zecchini the campo (44l. 6s. per Engliſh acre), and yields to the proprietor 3 to 4 per cent. I viewed an arable field cloſe to the city, yet ſowing with wheat, that would ſell for 100 zecchini per campo: and ſome other lands, juſt out of the Porta Nouva, that are exceſſively gravelly, would ſell for 15 zecchini; ſuch poor land, at a diſtance, would not ſell for more than 8 or 9 zecchini (5l. per Engliſh acre): it is, however, not ſo bad, but that good mulberry-trees are on it.

Vicenza.

The beſt watered meadows ſell at 2400 liv. to 3000 liv. the campo, which is about 65l. per Engliſh acre; the beſt arable is nearly as valuable. The worſt arable 300 liv.: in the beſt there are neither mulberries nor vines. Common price 900 liv. to 1000 liv.; and the produce 110 liv. per campo, about 55s. the acre. The higheſt rent in money is 3 zecchini the campo; common 1, 1½, or 2 zecchini. But, in general, land is let at half produce.

To Padua.

The beſt land ſells at 45 zecchini the campo: rice-grounds are at that price.

Padua.

The beſt arable land ſells at 200 ducats, of 6 liv. 4*ſ.* The campo is 840 pertiche quadrate, each of 6 feet, conſequently 30,240 feet; but the foot is 1 inch longer than the Paris foot: it is, therefore, equal to about 35,280 Paris feet *, or about $\frac{1}{10}$th under an Engliſh acre. Middling land, 95 ducats; bad, 50 ducats; rice-grounds, and conſequently irrigated, 200 ducats; the ſame land, before rice being planted, 100 ducats; watered meadows, 200 ducats; woods, 100 ducats; gardens, 400 ducats. Eſtates pay 5 per cent.

ECCLESIASTICAL STATE—*Bologna.*

Landlords are paid by half produce, which affords them about 1l. 6s. 5d. per tornatura, of half an Engliſh acre, and as much is left for the farmer: this is about 5l. 5s. an acre, groſs produce, on an average; but it is in the rich plain only. Through all the country, and including good, bad, and indifferent, it varies from 8s. 9d. to 26s. 5d. the tornatura, for the landlord's ſhare. The price for ſuch land as yields the latter ſum, is 21l. 17s. 6d. Engliſh, the tornatura: in general, from 8l. 15s. to 13l. 2s. 6d. The return for the value of land is 4 to 5 per cent. on the capital; but in farms on the mountains, 7 per cent.

TUSCANY—*Florence.*

The landlord's half of the produce, for all farms are let *a la metà*, is about 3 liv. nett (2s. 1½d.) per ſtiora on the plain (11s. 8½d. per Engliſh acre) †: it is 2 liv. on the hills (7s. 8½d. per acre), and 1 liv. on the mountains. No other proof is wanted of the poor ſtate of agriculture in this country, ariſing, doubtleſs, from ſo wretched a mode of letting land. What muſt it have been before the time of Leopold, who has done ſo much towards the annihilation of its old ſhackles?

Villamagna.

Three poderi, containing 200 ſtiori cultivated, and 283 of mountain wood, would ſell at 12,000 ſcudi (3400.l); and, per ſtiora, for the whole, 7l. each: it alſo yields a rent, by metaying, of 500 ſcudi; and land is commonly ſold to pay 3½ per cent. intereſt; but, more commonly, in other parts, only 3.

DUTCHY OF MODENA—*Modena.*

The biolca, which is here the meaſure of land, is 29 French toiſes, by 26. or 754; or, to the Engliſh acre, as 27,144 is to 38,300; or as 15 to 21. This

* Mr. Pauſton makes it more than an arpent of France, 1,0866. How he proves this, I am not arithmetician enough to know.

† This at the ratio of 5½ ſtiori per acre.

meaſure

meaſure of arable ſells from 500 liv. to 1200 liv.—the livre half that of Milan, or about 4d.; 800 would be 18l. an acre. Watered meadow ſells at 1200 liv. to 3000 liv.; the latter equals 70l. an acre. Such are mown thrice; the firſt cutting yields 1 carro, of 100 poid, or 2500 lb. (the pound about ⅘ths of an Engliſh pound); and the price of hay 3 to 4 zecchini per carro.

PARMA.

The beſt land ſells commonly at 50 zecchini the biolca (31l. 7s. per acre). To Firenzuola, the beſt ſells at 25 to 40 zecchini.

PIEDMONT—*Vogara.*

From St. Giovanni to Vogara, the price of the beſt is 500 liv. the journal. After that town, 24 ſcudi di Milano per tavola (about 20l. to 25l. per acre). From Vogara, to within a few miles of Turin, the average value of land is 500 liv. (26l. 13s. per Engliſh acre.)

SAVOY.

At Montmelian, vineyards ſet at 1000 liv. to 1200 liv. the journal, which about equals a French arpent. On the mountain ſides to Chamberry, on a ſoil, to appearance, abſolutely ſtones, that yield good wine, and ſell as high as meadow. Cultivated land, at Modena, in the Haut-Savoy, at 1000 liv. Improved mountain ſpots, 300 liv. to 500 liv.

The moſt careleſs examination of the preceding prices, will be ſufficient to ſhew, that land is ſold, at preſent, in Lombardy, ſome ages after it has loſt both its commerce and its manufactures*, at prices that ought to mark the direct influence of immenſe induſtry; for it riſes from 30l. to 100l. an acre, through a territory not comparable for ſoil, naturally to many others. I will venture to aſſert, that the ſame *land* in England, would not ſell for half, perhaps, not for one-third of the money. And it is worthy of remark, that the cities which poſſeſs moſt trade at preſent, as Leghorn, Genoa, and Venice, have little influence on the lands which ſell at the prices here noted. It is not the competition of Venetian merchants that raiſes the prices on the *terra firma*; and what have thoſe of Leghorn and Genoa to do with the Milaneſe and Piedmont? If Leghorn has not cultivated the Maremma, how was it to water the Lodizan?

* Every one knows, that, ſtrictly ſpeaking, there are both trade and manufactures in all parts of Lombardy; converting *raw* to organized ſilk, is certainly a manufacture; and making a few velvets at Genoa, or glaſs beads at Venice, are manufactures; but, for all the purpoſes of argument, Lombardy, when compared to ſuch countries as England and France, muſt be ſaid to be almoſt deſtitute of them.

Bologna is, parhaps, the moſt manufacturing town in Lombardy; but has it drained the Commachio? If you recur not to preſent, but to antient wealth, you muſt turn to Florence *, Piſa, Genoa, and Venice; the two firſt are in one of the worſt cultivated countries in Italy; of Genoa I know nothing. but by reading; but I have read no author that ſpeaks of great cultivation in the Ligurian territory, *free from ſmall preſent proprietors:* and let it be remembered, becauſe it is a circumſtance that merits it, that great commerce and fabrics, eſpecially when depending on a *city* that governs a *territory*, have a direct tendency not to eſtabliſh, but to annihilate ſuch properties.

The effect of great wealth, flowing from induſtry, is to extirpate little properties, by the profits from trade being inveſted in their purchaſe; one country-gentleman, with half a ſcore farmers, and a hundred labourers, takes the place in countries, where the progreſs of wealth is in its natural courſe, of a number of little proprietors, who eat up all their produce, and yet are half ſtarving for want. Is this the caſe in the Genoeſe territory? I am ſure it is not at Venice.

The ſureſt proof of the want of diſſeminating wealth in the country, is the almoſt univerſal practice of cultivating the land by metayers; if trade and commerce did much for Italy, which cannot be doubted, you muſt look for their effects, not in the country, but in towns. Thoſe cities that poſſeſſed much induſtry (which I have named), carry ſure proofs of former proſperity: go out of their gates, and you meet with none—from what did this ariſe? Probably from thoſe cities being *ſovereign* ones, and ſhackling the country with every ſpecies of monopoly, in favour of themſelves. What is it, therefore, that will diffuſe wealth through all the claſſes, and give verdure to the fields, as well as luſtre to the towns? An equitable government. Whatever we poſſeſs in England, we owe to this origin; and it highly deſerves notice, that it is not a cultivation ſuperior to that of other countries, which diſtinguiſhes our iſland ſo

* For the immenſe manufactures and wealth of Florence, in the fourteenth century, ſee Giovanni Villani, lib. ii. cap. 93. " *In Firenze le Botteghe* (anno 1330) *dell'arte della lana erano dugento e più e facevano da ſettanta in ottanta mila panni di valuta di più di mille dugento migliaja di fiorini d'oro* (ſono a ſcudi fiorentini 22,860,000) *che bene il terzo e più rimaneva nella terra per ovraggio ſenza il guadagno de'lanajuoli. Del detto ovraggio vivevano più di* 30,000 *perſone.* Se per tutti i prodotti e manifatture dell'intera Toſcana preſentemente non entra più di un milione due centomila ſcudi; chiaro è, che tempo fa la ſola arte della lana in Firenze produceva venti volte più utile di quello, che preſentemente ne faccia tutto lo ſtato. *Carli Saggio Sopra* la Toſcana, op. i. p. 348.

A moſt ſingular law paſſed during the republic of Florence, that no man ſhould make proof of nobility, who was not able to deduce it from the manufacture of wool or ſilk. *Carli*, tomo v. p. 335. A more commercial idea could no where root itſelf.

much,

much, as the eſtabliſhment of a race of men generally found no where elſe; a ſubſtantial and wealthy race of tenantry; a race found in every corner of England: in Lombardy, you muſt go for ſuch, not to Florence and Genoa, but to the Lodizan.

CHAP. II.

Of the Management of Graſs Lands.

CATTLE and graſs lands are ſo connected, that, I truſt, it will not be deemed an impropriety to treat of them in the ſame chapter, and as parts of the ſame ſubject. The obſervations I have made in Italy, will be divided eaſily into—1, irrigation;—2, live ſtock.

SECT. I.—OF IRRIGATION.

If there be one circumſtance which gives a ſuperiority to Lombardy, over all the other countries I have ſeen, it is this, and therefore merits the moſt particular detail.

PIEDMONT—*Nice.*

Such is the conſequence of water here, that a garden of 4 ſeſtaradi (a ſquare of 12 trebucchi, *i. e.* 144 is a ſeſtarada, and 400 trebucchi a giornata, which is to the Engliſh acre as 0.7440 is to 0,7929), with a ſmall houſe, lets at 20 louis d'or per annum, or about 15l. an acre.

Coni.

For the laſt ten miles from Nice to Coni, the country improves continually. The ſoil, near the mountains, is ſtoney, but is a good ſandy loam lower in the vale. It is perfectly level, and watered with the utmoſt attention, in a manner I had not noticed before; not, as in Spain, in beds, but the field is ploughed flat, ſown with wheat, the clods broken with hoes and buſh-harrowed, and then great deep trenches ſtruck with the plough, for letting in the water; theſe are 8 to 12 yards aſunder. They are now (September) watering clover 8 inches high, by letting the water into theſe trenches, and conducting it in a ſingular manner.

manner. A man walking backwards, draws, by a line, a bunch of ſtraw and weeds, juſt large enough to ſtop the water in the trench, and force it to overflow on each ſide. This is an expenſive and operoſe method, and inferior to the Spaniſh. The crops now on the ground are maiz; good, but not extraordinary: millet, and a little hemp; the male plants picked. A great deal of clover, but not much that is clean. But meadow abounds, which is the glory of Piedmont; and the conducting of the water, in multiplying conduits, ſeems well underſtood, and practiſed in great perfection.

Coni to Chentale.

In the watered meadows, much *chicorium intybus* and *plantago lanceolata*. Watered meadows are cut thrice commonly; but in ſome ſeaſons, four times.

Racconis.

The watered meadows are now mowing for a third time; the predominant plants—the *chicorium intybus*, *plantago lanceolata*, *acchillea millefolium*, and *trifolium pratenſe*.

To Turin.

From Coni to Turin, ſomething more than half the country appears to be watered; poſſibly two-thirds: and wherever the water is carried, it is apparently with great ſkill. It is, however, rather ſingular, that more trenches are not cut for taking the water off the land; the attention is chiefly paid to bringing it on; from which we may conclude, either that the heat of the climate renders ſuch drains leſs neceſſary than in England,—or that water is too valuable, from every one underſtanding its uſe, to be brought on in the leaſt ſuperfluous quantity. The contrivance, towards Turin, for carrying the aqueducts of irrigation acroſs the roads, are beautifully executed: for convenience of diſtribution, the water-courſe is raiſed three or four feet, or more, above the general level: theſe aqueducts are brought to the ſide of the road, and ſeemingly finiſh in a wall, but really ſink in a ſyphon of maſonry under the road, and riſe on the other ſide, behind another ſimilar wall. Seeing theſe buttreſſes of maſonry, without perceiving, at firſt, any water, I wondered, for a moment, to what uſe they could be aſſigned; but when I mounted the foot-way, this beautiful contrivance was, at once, apparent. Theſe are noble exertions.

Turin.

The irrigation in all this vicinity, is extenſive, and carried to great perfection. Water is meaſured with as much accuracy as wine. An hour per week is ſold, and the fee ſimple of the water is attended to, with the ſame ſolicitude as that of the

the land. Rich meadows, without water, ſell for 1000 liv. and 1100 liv. a giornata; and arable, worth 500 liv. without water, is, in many inſtances, worth 2000 liv. with it. Such a meadow as will ſell for 1100 liv. or 1200 liv. per giornata, will yield, the firſt mowing, 115 rubbii of hay, worth 9*ſ.* to 10*ſ.* the rubbio; the ſecond, 90 rubbii, at 7*ſ.* to 8*ſ.* and the third, 80 rubbii, at 6*ſ.* to 7*ſ.*; the fourth growth is ſold, to be eaten by ſheep, at 5 liv. This produce amounts to 120 liv. or 6l. Engliſh, per giornata, which is under an acre. The intereſt of 1100 liv. being at 40 liv. or 50 liv. there remains a ſufficient profit, after all expences are paid. During the winter, as the meadows are commonly fed with ſheep, they do not water at all. Some experienced cultivators avoid watering in the ſpring, till the froſts are over, which happen here as late as the 10th, and even the 15th of May, as a ſtrong freſh vegetation is, in ſuch caſes, entirely cut off; but, in general, no attention is paid to this circumſtance; and watering goes on at all times, except when ſheep are on the ground. Thoſe who have water enough, let it on to their land once a week, during the whole ſummer; but if the weather is wet, once a fortnight; and a day or two before cutting, if the water is perfectly clear. In regard to the quality of water, they make no other diſtinction than that for mountains being cold; and that of the Dora, near Turin, being charged with ſo much ſand as to be bad. They attend to the cutting of weeds in the canals, that they may rot; and ſome good managers harrow the bottoms in the ſpring, to foul the water, which then acts more powerfully as a manure. Another practice, which tends alſo to prove what excellent farmers they are in all that reſpects meadow-grounds, is that of paring and burning, which they perform on pieces that have a bad herbage, or want of improvement; but do not ſow them with corn, or any other plant, except hay-ſeeds, in order to renew the graſs, with no other interruption. It is impoſſible to praiſe ſuch practices too much. They call this huſbandry *motara*.

The power of effecting the great works in irrigation, which are viſible over this whole country, depends very much on the law, which ſuppoſes the right and property of all rivers to be veſted in the king; conſequently all canals taken from them, are bought of him; and this enſures another regulation, which is the power of carrying the water, when bought, at the pleaſure of thoſe who buy it, where they think fit; they cannot, however, cut acroſs any man's ground, without paying him for the land and the damage; but the law does this by regulations known to every one, and no individual is allowed a negative upon a meaſure which is for the general good. The purchaſers of water from the king, are uſually conſiderable land owners, or communities that have lands wanting water; and it is of no conſequence at what diſtance theſe lands may be from the river, whence the water is taken, as they have a right to conduct it where they chooſe, provided they do not cut through a garden or pleaſure ground.

ground. Nor can they carry the water *under* that of others, whoſe canals are already made, as they might in that caſe deprive them of a part of their water; they are obliged to throw aqueducts *over* ſuch canals. The benefit of water is ſo great and well underſtood, that nobody ever thinks of making objections; and in caſe their lands are not already watered, it is no ſmall advantage to have a new canal brought through them, as they have the opportunity of buying water of the proprietors. It is ſold per hour per week, and even half an hour, and down to a quarter. The common price of an hour per week, for ever, is 1500 liv.—At Gruliaſcho, four miles from Turin, there are many Perſian wheels that lift up the water by buſkets; the wheels are double, with waſhers between for the ſtream turning them; the buckets or boxes on one out ſide only; they raiſe the water 8 or 10 feet, and about 2½ ſhort of the full diameter of the wheel, and I could not perceive that they loſe a drop; none falls, except what adheres to the wheel itſelf. To ſave the expence of multiplying ſluices, for the occaſional ſtoppage of water, in carrier trenches, to force it over the land, they have a moveable board that fits the trench, which is placed occaſionally where wanted, and anſwers the purpoſe well. They have none of the ramifications of carrier trenches common among us; and not ſo many drains for taking the water of as with us; and, on the whole, do not ſhew any thing like our attention in the uſe of the water, though twenty, or rather an hundred times more in bringing it from rivers, and diſtributing it about the country; and I could not but obſerve, that their meadows have much bad herbage, and many places damaged by the water reſting too long; this is more the caſe here than it ſeemed to be from Coni to Racconis, where the meadows carried a better countenance.

Turin to Chivaſco.

Not one-third of this country is watered. At Chivaſco but little alſo. After croſſing the Dora Belta, there are ſoon two conſiderable canals of irrigation; one made two years ago only, which is as great a work as a navigation in England.

Ciglione.

Little land watered in this country; but I obſerved here ſome meadows, with off channels, from the principle ones, for conducting the water, which I did not notice before; but very few drains. The new canal croſſes a gravelly waſte, but none of it watered.

Trouchan.

A very rich country much watered; and many mulberries.

St.

St. Germano.

Mowing the third crop of graſs, and very poor; not more than 15 cwt. an acre, and yet watered. The glory of Piedmont is from Coni to Turin. Thoſe who paſs Mont Cenis to Turin, and Turin to Milan, ſee, on compariſon, nothing.

Vercelli.

The new canal, now making, for taking water from the Dora Baltia, and conducting it to the rice grounds of Vercelli, is done by the king, and will coſt three millions; the water is ſold to communities. The other I croſſed near the Dora, at the ſame time, was made long ago, and belongs to the Marquis de Bourg.

MILANESE—*Buffalora.*

After croſſing the Teſino, in ſeveral branches, and entering the Milaneſe, we find a great ſyſtem of watering meadows to Buffalora, where that magnificent canal, the Navillio Grande is 20 yards broad, and though navigable, was originally made for irrigation alone.

St. Pietro Olmo.

Hence, for ſome diſtance, there is no watering; but then there is ſomething in our Berkſhire method; the lands are arched up, and juſt in the centre, on their crown, are the carrier trenches for conducting the water, and on each ſide a row of low ſallows; ſome of theſe lands are two rods broad, and two feet higher in the ridge than in the furrow; the land firm and the herbage good: wherever the meadows ſeem good, there is abundance of *chicorium intybus*, *plantago lanceolata*, and *trifolium pratenſe*.

Milan.

As the irrigation of the Milaneſe is perhaps the greateſt exertion of the kind that ever was in the world, and certainly the firſt that was undertaken in Europe, after the decline of the Roman empire; it merits every attention that a farming traveller can give; for it will be found, by very briefly recurring to records, which have been ſearched, that great exertions (perhaps as great as ever known) were made in this country, at a period when all the north of Europe was in a ſtate of barbariſm. In the year 1037, mention is made of the canal Vecchiabbia. In 1067, watered meadows were common, called *prato roco*, by Landolfo*. In 1077, there are notes of many ſtreams uſed. In 1138, the

* *Giulini*, tom. iv. p. 122. 224. 225.

monks of Chiarevalle bought of Giovanni Villano ſome commons, woods, and meadows for 81 liv. under the contract (a parchment yet remaining) " ut monaſterium poſſit ex Vectabia trahere lectum ubi ipſum monaſterium voluerit et ſi fuerit opus liceat facere eidem monaſterio foſſata ſuper terram ipſius Johannis ab una parte viæ et ab alia.... &c. poſſit firmare et habere cluſam in prato ipſius Johannis, &c." There is a ſimilar contract of the following year, and various others, until the beginning of the 13 century; from which, and others, it appears, that the Vecchiabbia was the entire property of the monaſtery, and confirmed in 1276 by the diploma of the Emperor Frederick II. The merit of theſe monks appears to have been great, for they gained ſuch a reputation for their ſkill and induſtry, that they had many applications for aſſiſtance in directing works ſimilar to their own upon uncultivated lands; and the Imperial Chancellor Rinaldo, in the time of the Emperor Frederick I. being appointed archbiſhop of Cologne, found the poſſeſſions of his ſee in ſuch a deplorable ſtate, that he applied for, and found the ſame aſſiſtance, as reported by Ceſarior Eiſterbacenſe. Their greateſt exertions were in irrigation, which was ſo well known, that they ſold their ſuperfluous water, transferring the uſe and property of ſome by the hour, day, and week. In two centuries they came to be poſſeſſed of 60,000 pertiche, moſtly watered: there is reaſon to believe that the practice, in the 13th century, did not materially differ from the preſent modes; becauſe, in the papers of the archives of the abbey of that period, mention is made of *chiuſe*, *incaſtri*, *bochilli*, *ſoratoi* *, and other works, to diſtribute the water, and regulate the irrigation †. In 1164, the Emperor Frederick gave various rights, in certain rivers, to the people of Pavia, for the purpoſes of irrigation ‡. In 1177, the people of Milan enlarged and continued the Navillio Grande, from Abbiate Graſſo to Milan, being 14 miles; it was brought from the Teſino, near the Lago Maggiore, to Abbiate Graſſo, 20 miles, by the people of Pavia, long before the date of any records now known to remain §. In 1271, it was made navigable. It is thirty-two Italian miles long, and twenty-five bracchi wide, or forty-nine Engliſh feet. ‖

The ſecond great work, was the canal called Muzza, which takes the waters of the Adda, at Caſſano, and carries them to Marignano, there dividing and

* *Chiuſe*, are ſluices; *incaſtri*, are water gates, that are moved perpendicularly; *bochilli*, openings in the banks to diſtribute water; *ſoratoi*, diſcharges for carrying off ſuperfluous water; the ſame as *ſcaricatori*.

† *Memorie Storica ed Economica ſull' Irrrigazione de Prati. Don. Ang. Fumagalli Atti di Milano*, tom. ii. p. 215.

‡ *Giulini*, tom. vi. p. 330.

§ *Nuova Raccolta d'Autoriche trattano del moto dell' Acque*. Parma. 1768. 4to. Tom. vii. P. Priſi. p. 97.

‖ *Ibid.* p. 98.

watering

watering much of the Lodizan. It was executed in 1220*, and done in ſo admirable a ſtyle, that Padre Friſi, in the preface to *Modo di regolare i fiumi, &c.* ſays,—" il meccaniſmo d'irrigar le campagne è ſtato ridotto all'ultimo grado di maeſtria e di perfezione nel canale di Muzza†." And Padre Antonio Lecchi, another great engineer and mathematician, remarks,—" De'noſtri trè celebri canali di Muzza, e de'due navigli qual altra memoria ci rimane ora, ſe non ſe quella del tempo della loro coſtruzione, e d'altre poche notizie, niente concernenti al maravigliоſo artifizio della loro condotta ‡."

In 1305, the canal of Treviglio was made, which takes the water from the Brembo, and carries it, for ſeveral miles, about twenty-five feet wide, and about three deep; it irrigates the territory of Triviglio and the Ghiara d'Adda. And, within four or five miles, there are five canals, taken from the Adda and the Brembo, all of great antiquity. In 1460, the canal de Martefano was begun, under Duke Francis Sforza I.; it was twenty-four miles long, and eighteen braccia (thirty-five Engliſh feet) wide; ſince lengthened ſeven or eight miles more. It takes the waters of the Adda, a little before Trezzo, by means of a powerful wear *(chiuſe)* founded upon the living rock; it is then ſupported for five miles by a ſolid wall of ſtone, forty braccia (eighty feet) above the bottom of the Adda, and parallel with it. At Gorgonzola, it paſſes over the torrent Molgora, by a bridge of three ſtone arches. At Carſenzago, it is croſſed by the river Lambro, which enters and quits the canal with all its floods. And, in order to prevent the ſurplus of water, which this circumſtance occaſions, from breaking the banks of the canal, or overflowing them, there are nineteen ſcaricatori in the canal, above, below, and facing the junction, which are ſo calculated, that they have not only powers ſufficient to take off the waters of that river, but alſo half of thoſe of the canal itſelf. Theſe ſcaricatori are canals which take the water, when ſluice-gates are opened for that purpoſe, and convey it, at various diſtances, to the Lambro again; the fall in its courſe being conſiderable enough to free the canal from all ſuperfluity of water. Near Milan, this Navillio receives the torrent Seveſo; and, after ſurrounding the city, unites with the Navillio Grande and the Olona. The ſluices which Belidor ſuppoſed to be invented by the Dutch, were uſed, for the firſt time, near Padua, in 1481, by two engineers of Viterbo, Dionifius and Peter Domenico, brothers §. Leonardo da Vinci profited immediately of this great invention, for

* Verri, Storia di M. t. i. p. 240.

† Nuova Raccolta, tom. vii.

‡ *Ib. Piano, &c. de tre torrenti*, p. 141.

§ *Mate dell' Acqua*, vol. v. Parma, 1766, p. 359. Mentioned by Zendrini in the tenth chapter, *Sopra l'Acqua Corrente.* This is the common ſuppoſition in Lombardy, and is thus recorded; but it appears to be an error, by a paſſage in *Giulini*, tom. xii. p. 332, where, anno 1420, mention is expreſſly made of them, *machinarum quas conchas appellant, &c.*

the union of the two canals of Milan; and finding between them the difference of the levels to be eighteen braccia *, he, with ſix ſluices, in the year 1497, under Ludovico il Moro, opened and facilitated the navigation from one to the other. The greateſt *ſcaricatori* † of the waters united at Milan, is the canal of Vecchiabbia, which, after having ſerved ſome mills and irrigation, falls into the Lambro near Marignano; and if this canal were made ſtraight, and ſupported by ſome ſluices, the navigation might be continued to the Lambro, and thence to the Po and the ſea. Both theſe canals, the Grande and the Martesano, are ſo contrived, as to be completely emptied once a year, for cleaning and repairing whatever accidents may have happened to any of the works.

I have entered into this digreſſion upon a very curious ſubject, little known in Engliſh literature ‡, in order to ſhew how well irrigation was underſtood, and how admirably it was practiſed, when the countries on this ſide of the Alps were barbarous. At the ſame time, however, that juſtice is thus done to theſe great exertions, we muſt bear in mind, that few diſtricts in Europe are better, or ſo well, ſituated for irrigation. The lakes of *Maggiore* and *Como*, nearly upon the ſame level, are three hundred feet (one hundred and fifty braccia) higher than Milan,— and that of Lugano two hundred feet higher than thoſe, with a nearly regular declivity to the Po §.

There are authors who have aſſerted, that agriculture is improved in conſequence of great trade or manufactures only; but the inſtance of the immenſe irrigation in the Milaneſe, effected by theſe and many other canals, too numerous to mention, will not allow of ſuch a concluſion being general; and to ſhew that my opinion is not without foundation, a very brief review of the ſtate of Milan, ſo far as it reſpects theſe periods, will not be diſpleaſing to a reflecting reader.

In 1177, when the canal de Navillio Grande was made, the republic of Milan had been gradually forming for about two hundred years ‖; but theſe dominions were exceedingly confined;—Lodi, Pavia, Mantua, Verona, Crema, Tortona, Como, Bergamo, Breſcia, Piacenza, Parma, Genova, Aſti, Vercelli,

* P. 98. *Friſi.*

† The *ſcaricatori* are what I believe we call wears in England; they are diſcharges of ſuperfluous waters. Mr. Brindley made them, in the Duke of Bridgewater's canal, circular, and in the centre of the river, to convey the water, as into a well; but in Italy they are cuts or openings in the banks of the canal, at places that allow a quick conveyance of the water; for inſtance, where a canal croſſes the bed of a river: their powers are calculated with ſuch a mathematical exactneſs, proportioned to the quantity of water brought into the canals, by the rivers joining them, that no floods ever effect the ſurface, which is of an equal height.

‡ One would naturally look for ſome knowledge of theſe facts in *Anderſon's Deduction of Commerce*; but we ſhall look in vain.

§ *Verri, Storia di Milano.* 1783. Tom. 1. p. 5.

‖ *Storia di Milano.* P. Verri. 4to. 1783. Tomo i. p. 142.

Novara,

Novara, Cremona, Ivrea, Padua, Alba, Treviſo, Aquileia, Ferrara, Reggio, Modena, Bologna, Imola, Ceſena, Forli, Rimini, Fano, and Ancona,—were, at that time, independent republics*; which united againſt Milan, in 1162, with the Emperor Frederick I. and beſieged and deſtroyed it. This ſingular fact that in fifteen years after one of the moſt ſignal deſtructions that could be brought upon a city, there ſhould be found energy enough in a petty republic, to undertake a work which is, in the preſent age, regarded as an honour to Lombardy, muſt be admitted as a proof, that the trade and manufactures of that period could have been but very inconſiderable.

Milan, however, unqueſtionably aroſe to great power and proſperity; and our buſineſs is to inquire into that period, whence we may judge how much its commerce might influence the perfection to which ſhe has carried her agriculture.

1042, Civil war; the nobility driven out by the people.
1056, The government changed.
1067, Meadows watered. *Guilini*, IV. 122.
1108, War with Pavia.
1111, Lodi deſtroyed by Milan
1127, Como deſtroyed by Milan.
1153, Frederic Barbaroſſa interpoſes.
1162, Milan taken and deſtroyed.
1167, The people of Milan living in tents and cabins. To,
1183, War with Frederic
1177, Navillio Grande continued to Milan.
1191, Grant of waters to Pavia, for irrigation, by the Emperor Henry VI.
1204, The nobility expelled.
1210. The archbiſhop's revenue 80,000 fiorini d'oro, equal to 10 millions of livres now.
1216, A woollen manufacture.
1220, The canal of the Muzza made.
1221, The archbiſhop and nobles expelled.
1237, War againſt the Emperor Frederick II.
1240, Government reduced to pay in paper money; the origin of all that has paſſed ſince in Europe.
1257, The nobility expelled.
——, The Navillio Grande begun to be made navigable.
1263, Factions of the Guelphs and Ghibellines now in full activity at Milan.
1271, The Navillio Grande navigable.

* Verri, tomo. i. p. 175.

1277, Civil

1277, Civil war;—Toriani and Viſconti.
1281, Ditto.
1288, Milan buys wool from France, Flanders, and England.
1296, Decree, that gave to every one the power of conducting water acroſs all great roads, provided ſtone bridges were erected.
1302, Revolution;—the Toriani get the better of the Viſconti.
1305, Canal of Treviglio made.
1310, Revolution; the Viſconti prevail.
1327. Violent factions of the Guelphs and Ghibellines,
1332, Grant of water for irrigation to the people of Treviglio.
1350—1385, Tyranny of the Viſconti drives away the manufactures.
1395, Great Power of Milan over the cities of Lombardy. *
Through every part of the 14th century, the paſſages in the Annals are numerous which prove how well irrigation was underſtood, and how highly canals of water were valued.
1421, Milan exports cloths to Venice. †
1457, Moſt of the conqueſts of Milan loſt.
1460, Canal de Marteſano made.
1481, Sluices invented at Padua.
1497, Leonardo da Vinci joins the canals at Milan.

It ſhould ſeem, from this detail, that the exertions in irrigation were almoſt purely agricultural; the benefit enjoyed by the people of Pavia, from the Navillio Grande, was a conſtant proof of the advantages to be derived from ſimilar canals; and they were executed at moments which will not allow us to attribute them to the influence of manufacturing or commercial wealth.

* In 1378, Giovanni Galeazzo Viſconti Conte di Virtu was declared Duke of Milan, his dominions then compriſing Arezzo, Reggio, Parma, Piacenza, Cremona, Lodi, Crema, Bergamo, Breſcia, Verona, Vicenza, Feltro, Belluno, Baſſano, Bormio, Como, Novara, Aleſſandria, Tortona, Vercelli, Pontremoli, Bobbio, Sarzana, Pavia, Valenza, Caſali, Padua, Alba, Aſti, Bologna, Piſa, Siena, Perugia, Nocera, Spoleto, and Aſſiſi. *Verri.* p. 417.

† As this woollen manufacture is ſaid to have been in the hands of an order of friars, the *frati umiliati*, we have no reaſon to ſuppoſe it an object of great conſequence; the expreſſions ſeeming to imply its magnitude being applicable to a compariſon with poorer neighbours. Count Giulini ſays, on occaſion of its being carried from Milan to Sicily, "*che tanto fioriva fra noi*," (tom. viii. p. 585;) but records do not explain the extent; though we are told that they worked up wool from France, Flanders, and England, in 1288 (tom. viii. p. 399.); which trade had exiſted to ſome degree of conſideration in 1216. Count Verri uſes the expreſſion——"lavoro de pannilani la quale formò la ricchezza *coſpicua* di Milano," (*Storia di Milano*, tom. i. p. 357.) But it was Venice, Genoa, Piſa, Amalfi, and Ancona that had the empire of the ſea, which gave that author reaſon to ſay, "che tutto il commercio dell' Europa era preſſo gl' Italiani." (tom. i. p. 465.)

To

To this may be added, that during the thirteenth and fourteenth centuries *, Italy was the perpetual ſcene of bloody wars: the Venetians and Genoeſe, the Venetians and the Mileneſe, and, in their turns, the other republics, ſeem to have had no other buſineſs than that of cutting each other's throat. A perpetual ſtate of warfare, and ſo many revolutions as were taking place in the governments of the Italian cities, were little adapted to give a ſecurity of poſſeſſion eſſentially neceſſary to the eſtabliſhment of ſuch manufactures and commerce, as ſhall, by the overflowing of their ſurplus, ameliorate the agriculture of a country.

It was but fifteen years after the deſtruction of Milan, that the Navillio Grande was made; and within three years after the loſs of all her conqueſts, that the canal de Marteſano was digged: theſe great undertakings were, therefore, executed at periods when commercial proſperity could leaſt of all effect them. There was no ſtability in that proſperity. It is alſo to be remembered, that throughout this period of Milaneſe hiſtory, that people, even at the height of their power, were never maſters of a commercial ſea-port. It is true, that they twice took Genoa; firſt in 1353, but kept it for a very ſhort time; and again in 1421, when they were in poſſeſſion of it but fourteen years; and amongſt all the dominions of Galeazzo Viſconti, Sarzano was the only port, and that never a commercial one; thus the fabrics of Milan were obliged to be exported through the Venetians or the Genoeſe, who laid duties on the tranſport of their commodities.

The concluſion of the whole ſeems fairly to be, that we are not to attribute the irrigation of the country to wealth derived from foreign commerce; the fertility and excellent management of the lands ſupported a great population, which proved as induſtrious as public calamities and confuſions would allow; but it does not appear that this induſtry was ever continued through a long ſeries of peace and happineſs.

An other idea has been ſtarted, that Lombardy owed her irrigations to the effect of the cruſades; that the mad enthuſiaſts, who went upon thoſe expeditions, brought home with them the art of cutting canals, for this moſt beneficial purpoſe; but hiſtory does not give ſufficient lights to allow of this concluſion. I have already remarked, that the Navillio Grande was made by the people of Pavia, long before thoſe of Milan made the cut to that city; and ſo long before, that no records in the archives were found of it by that moſt

* In the preceding periods it was probably worſe. Count Verri obſerves, "Dello ſtato della populazione nel decimo ſecolo—mi pare veroſimile che doveſſe eſſere mediocremente popolata Milano. Le terre erano coltivate parte da ſervi e parte da liberti. Molte parti del ducato era boſco. In qualche luogo, che ora ſi coltiva forſe, ancora v'erano delle acque ſtagnanti." *Storia di Milano*, tom. i. p. 76.

induſtrious

induſtrious ſearcher into antiquity, Count Giulini. This fact ſeems nearly deciſive; for the firſt cruſade did not commence till 1096, nor terminate till 1100, before which period there is every reaſon to ſuppoſe, the canal in queſtion was cut as the reſearches of Giulini go ſo far back as 773. The cruſades ended in 1291; and, had the effects been as great as poſſible, yet they cannot be imagined to have taken place immediately; it muſt be, after much conſultation and long reaſoning, that whole towns could be brought to co-operate in the execution of ſuch plans for the common good, from mere reports of the effect in diſtant countries and different climates. Another circumſtance, tending to prove that irrigation in Lombardy was much more antient than the cruſades, is that Theodoric, who began to reign in Italy, anno 493, publicly rewarded an African who had come thither, in order to inſtruct the Italians in the art of irrigating lands, as Mr. Profeſſor Symonds has explained, with his uſual elegance, in his moſt agreeable paper on the effect of water in the agriculture of Italy *. Now if this art had been thus introduced, or, more properly ſpeaking, revived in Italy above ſix hundred years before the cruſades were thought of, there connot be much reaſon for attributing that improvement to the obſervations of thoſe frantic enthuſiaſts. It is remarkable, that Count Verri, in his Hiſtory of Milan, ſays, he had long conceived, that their irrigations were to be aſcribed to the Cruſades; but, from paying more attention to the authorities quoted by Count Giulini, he gave up that opinion, and concurred in the idea of a greater antiquity †: for which alſo P. Friſi ſeems to contend, when he ſays expreſſly, that the canal made by the people of Pavîa was more antient than 1177 ‡.

And here it may be worth remarking, that Pavia was the capital and reſidence of Theodoric, whence there reſults, at leaſt, a preſumption, if he ſent to Africa for a perſon to inſtruct the Italians in irrigation, that here was the field of his exertions; and that this very canal was the work of that ſovereign, not the leſs celebrated for thus laudably applying himſelf, in a barbarous age, to works that would do honour to the politeſt.—But to return from this long digreſſion.

The ſame law that has been ſo effectual in watering Piedmont, operates here alſo, and has done even greater things. He who diſcovers a ſpring, conducts

* Annals of Agriculture, vol. i. p. 421.

† *Storia di Milano*, tomo i. p. 354.

‡ Con tutte queſto però, ſe imparzial mente ſi vorrà avere riguardo al tempo, alle circonſtanze, alla maeſtria del lavoro, il naviglio di Milano che forma la communicazione del Teſino, e dell'Adda, potrà paſſare per il capo d'opera, che abbiamo in queſto genere. Per quanto dice il Sigonio nel libro 14 del regno d'Italia all'anno 1179, pare che il primo tronco dello ſteſſo Naviglio, del Teſino ad Abbiate Graſſo, foſſe già dai tempi più antichi incominciato e finito dai paveſi per irrigare le vicine loro campagne. Fù nell'anno 1177 che i Milaneſi conduſſero lo ſteſſo cavo da Abbiate a Corſico, e a Milano. *Nuova Raccolta*, vol. vii. p. 97.

it

it where he pleaſes, paying a fixed compenſation * for cutting through the properties of others. All rivers belong, as in Piedmont, to the ſovereign, who ſells the waters to ſpeculators for this moſt beneficial purpoſe of irrigation. In the diſtribution of it, by ſale, they do not meaſure by the hour, as in Piedmont, but by the ounce; 12 oz. are a braccio, or 22 inches: an ounce of water is a ſtream that runs one braccio long and one ounce deep; and the farther the water has run, the higher is the price, as being more charged with manure.

As an example of the beneficial influence of this law, I was ſhewn, between Milan and Pavia, a ſpring that was diſcovered two miles from the lands of the diſcoverer, the properties of many perſons lying between him and the ſpring. He firſt bought the property of the perſon in whoſe land it was ſituated, which was eaſily done, as it was too low to be there of any uſe; then he conducted it by a trench at pleaſure the two miles, paying the fixed price for cutting through his neighbours lands; and, having gained it upon his own, preſently changed poor hungry arable gravel into a very fine watered meadow.

Near Milan, a watered meadow ſells at 800 liv. the pertica (32l. 15s. the Engliſh acre); and the rent of ſuch is about 30 liv. (1l. 5s. the Engliſh acre.) This muſt not, however, be claſſed high; for there are lands that riſe to 4000 liv. (163l. the Engliſh acre.). In land at 800 liv. or 1000 liv. water often makes half of the value; that is, the rent to the owner of the land will be 15 liv. to 20 liv.; and as much to ſome other perſon for the water.

In viewing a great farm, ſix or ſeven miles from Milan, in the road to Pavia, I found that all the watered meadow was mown four times; and that what was watered in winter, *prati di mercita*, five times. Such is the value of water here, that this farm, which watered is rented at 20 liv. the pertica, would not let at more than 6 liv. without water, the ſoil being gravel. The irrigation of the *mercita* begins in October, and laſts till March, when it is regulated like all other meadows. All in general begin in April, and laſt till September; and if there be no rain, once in ſeven to fifteen days. An ounce of water, running continually from the 24th of March to the 8th of September, is worth, and will ſell for 1000 liv. When arable crops want water, it is always given.

Milan to Mozzata.

Every conſiderable ſpring that is found, becomes the origin of a new canal. They clear out the head for a baſon, and ſink caſks, by way of tunnels, for the

* Theſe laws, relative to the conduct of irrigation, are as old as the republic of Milan; firſt compiled into a collection of ſtatutes and cuſtoms in 1216 (*Verri*, p. 239.) They were reviſed and collected, by order of Charles V. and are in full force to this day. *Conſtitutiones Dominii Mediolanenſis Decretis et Senatus Conſultis. Gab. Verri.* Folio, 1747. De aquis et fluminibus, p. 168.

water to riſe freely, and without impediment from mud or weeds. There are uſually three, four, or five of theſe tunnels, at the bottom of a baſon of twenty or thirty yards.

Milan to Lodi.

Of all the exertions that I have any where ſeen in irrigation, they are here by far the greateſt. The canals are not only more numerous, more inceſſant, and without interruption, but are conducted with the moſt attention, ſkill, and expence. There is, for moſt of the way, one canal on each ſide of the road, and ſometimes two. Croſs ones are thrown over theſe, on arches, and paſs in trunks of brick or ſtone under the road. A very conſiderable one, after paſſing for ſeveral miles by the ſide of the highway, ſinks under it, and alſo under two other canals, carried in ſtone troughs eight feet wide; and at the ſame place under a ſmaller, that is conducted in wood. The variety of directions in which the water is carried, the eaſe with which it flows in contrary directions, the obſtacles which are overcome, are objects of admiration. The expence thus employed, in the twenty miles from Milan to Lodi, is immenſe. There is but little rice, and ſome arable, which does not ſeem under the beſt management; but the graſs and clover rich and luxuriant: and there are ſome great herds of cows, to which all this country ought to be applied. I cannot but eſteem the twenty miles, as affording one of the moſt curious and valuable proſpects in the power of a farmer to view; we have ſome undertakings in England that are meritorious; but they ſink to nothing, in compariſon with theſe great and truly noble works. It is one of the rides which I wiſh thoſe to take, who think that every thing is to be ſeen in England.

Lodi.

Examining ſome watered meadows, in high eſtimation, I found the following plants moſt predominant, and in the order in which I note them:—1, *Ranunculus repens*; 2, *Trifolium pratenſe*; 3, *Chicorium intybus*; 4, *Plantago lanceolata*; 5, *Achillea millefolium* *; and about one fifth of the whole herbage at bottom ſeems what are properly called graſſes. Theſe rich meadows about Lodi are all interſected by ditches, without hedges, but a double row of pollard poplars; all on a dead level, and no drains to be ſeen. They are now (October)

* There appeared but few ſigns of ray-graſs, yet it certainly abounds in ſome of their fields: opinions in Lombardy differ concerning it; Sig. Scannagatta praiſes it highly (*Atti di Milano*, tom. ii. p. 114); but one of the beſt writers in their language, Sig. Lavezari (tom. i. p. 82.) wonders rather at the commendations given of it in other countries: he miſtakes the French name, it is not *ſainfoin*; the *lojeſſa* of Lombardy, and the *ray-graſs* of England, is the *lolium perenne*; the French ſainfoin is the *hedyſarum onobrachis*.

cutting

cutting the graſs and weeds in the ditches, to cart home for making dung. The meadows are commonly cut thrice; but the beſt four times. The produce of hay per pertica, 6 *faſſi*, of 100 lb. of 28 oz. at the three cuts. Price of the firſt, 8 liv. per faſs; of the ſecond, 5 liv.; of the third, 4½ liv. They water immediately after clearing, if there be no rain. Without irrigation, the rent of the country in general would be only one-third of what it is at preſent. In forming theſe watered meadows, they have very ſingular cuſtoms:—all are broken up in rotation; flax ſown for the firſt crop, and their way of laying down is to leave a wheat ſtubble to clothe itſelf; clover is prohibited by leaſe, from an abſurd notion that it exhauſts the land; and that it is not ſo good as what the nature of the ground gives; but on worſe land, the other ſide of the Adda, they ſow clover.

Lodi to Codogno.

All this country the ſame as about Lodi; a dead level, cut into bits of from three to ten acres, by ditches, without hedges, and planted with double rows of poplars and willows, all young, for they are cut as ſoon as the ſize is that of a thin man: here and there one is left to run up to timber. I remarked, in the meadows fed, that the *ranunculus* is avoided by the cows as much as poſſible. I expected, in one meadow, to find it the *acris*, but much of it was the *repens*, All this country is alternately in tillage; ridge and furrow every where: no permanent meadow. After ſeven miles, the road being natural, ſhews the ſoil to be a loamy ſand, binding with rains *.

Codogno.

Thirteen pertiche of watered land neceſſary for a cow; the hay of which is cut thrice and it is fed once; ſuch land ſells at 300 liv. and lets at 10 liv. free from tax. The whole country is ploughed by turns, being down to clover for the cows four years.—1, Flax, and then millet; 2, maiz; 3, wheat and clover; and reſts then for feeding cows; white clover comes, but it is bad for cheeſe. The reader will note, that this opinion differs from that near Milan.

* As well watered as this country is, yet in the ſpring 1779 the ſeaſon was ſo dry, that, where the Lambro enters the Po, men and women croſſed the Po itſelf on foot, as if merely a rivulet; the rector of Alberoni himſelf paſſed it, and the water reached only to his middle. The damage was great every where, but fatal in the Lodizan, where herds of cows were obliged to be ſent out of the country to the paſtured: the miſchief the greater, as from 1774 to 1779 they had augmented their cows 5000, (*Opuſcoli Scelti*, tom. vi. p. 56.) The climate has, however, in all ages, been ſubject to great droughts. From May 1158 to May 1159, there fell no rain in Lombardy; wells and ſprings all dried up. The Emperor paſſed the Adige, with his army, near Verona, without boats; and the Count Palatine of Bavaria paſſed thus the Po, below Ferrara. *Giulini*, tom. vi. p. 175.

Codogno to Crema.

Croſſing the Adda, from the Lodizan, there is more arable, and much fewer cows.

Milan to Vaprio.

In this line there are ſome dairies, but not many. Near the city there is much graſs, all cut into patch-work of diviſions, and planted ſo as to ſeem a wood of willows; after that much tillage: though all is flat, and there are no great exertions in watering. But the road paſſes by that fine navigable canal de Marteſano from Milan, which, at Vaprio, is ſuſpended as it were againſt the hill, twenty feet above the Adda:—a noble ſpectacle.

Before we quit the Milaneſe, it will be proper to make a general remark on the conduct of their irrigation, that ſome evils are obſerved to attend the practice for want of a better foreſight and more attention; particularly from the gradual enlargement of the carrier canals and ditches; they clean them with ſo much care, for the ſake of obtaining the mud, as a manure, that theſe are every where become too wide for the quantity of water they convey. Sig. Bignami has written upon this point very rationally, in his diſſertation *Sull'abuſo di ſcavare i canali delle roggie ed i foſſi nel Lodigiano*; where he aſſerts, that one-tenth part of their lands is occupied by canals and ditches. The evils are numerous; it is not only a conſiderable loſs of land, but it is an equal loſs of water, for when an oncia of a given run of water is purchaſed, there is a great difference between its firſt fitting a great or a ſmall channel, as in proportion to the ſize will be the quantity of uſeleſs fluid. The atmoſphere is alſo proportionably contaminated; for this great breadth, either of ſtagnant water, when irrigation is not actually going on, or, what is worſe, of mud, in ſo hot a climate, muſt be peſtiferous; and to this have been attributed the diſtempers which have frequently made ſuch havoc among their cattle. Another inconvenience is, the greater expence of all erections, bridges, ſluices, &c. &c. which are in proportion to the breadth of the channels. The remedy is obvious; it is to forbear all cleanſing for the ſake of mud; to let all aquatic weeds, and other plants, grow freely *on the banks, edges, and ſides* of the canals, and to clear them in the middle only. Such a conduct would, in time, quite choak them up, and enable the farmer to keep his canals exactly to their right width. All theſe plants covering the ſpaces, which, in canals often cleaned, are bare earth or mud, would be very beneficial towards preventing and decompoſing that noxious, and mephitic, and inflammable gas, always iſſuing from ſuch mud, which is ſo peſtilential to animals, yet ſo ſalutiferous to plants; for mud, covered with plants that are ready to feed on its exhalations, is much leſs miſchievous than

than that which is expoſed to the rays of a burning ſun. Count Carlo Bettoni, of Breſcia *, has practiſed a method which acts on ſimilar principles; namely, that of burying or fixing willows or poplars to the ſides of the rivers whoſe banks he wanted to preſerve, with the precaution only of keeping the ends of the branches out of water; he finds that they grow vigouroufly in this ſituation, and, by ſtopping the mud of the current, form a ſolid bank; this, on a ſmall ſcale, might certainly be executed: alſo in the canals of irrigation, as it has been remarked, by the author already quoted, in the *Atti di Milano*.

VENETIAN STATE—*Vaprio to Bergamo.*

There is a mixture of watered meadow in this line, but the quantity is not conſiderable. In ſome which are old, I found a good ſprinkling of *trifolium repens, chicorium intybus*, and *plantago lanceolata*; but alſo much *ranunculus* and rubbiſh. In the plain cloſe to Bergamo, they clean the irrigation-ditches at the end of November, and harrowing them with a faggot, to thicken the water, let it immediately on to their meadows, which is ſaid to enrich them much.

To Breſcia.

The Venetian State, thus far, is a conſiderable falling off from the Milaneſe, in reſpect to irrigation; the country is not without canals, but neither the number, nor the importance of them, is to be compared to thoſe of Milan. From Coquillio to Breſcia, there are many channels, yet the lands are not half watered.

Breſcia to Verona.

The road paſſes, for ſome diſtance, by a very fine canal, yet the quantity of watered land in this route is but inconſiderable. Before we arrive at the Lago di Guarda, there are a few meadows never ploughed, that have a good appearance: but none from the lake to Verona. On the whole, theſe forty miles, for want of more irrigation, are not comparable to the Milaneſe or to Piedmont. This route, ſo much to the north, gives the traveller an opportunity of ſeeing a chain of conſiderable cities, and of obſerving the effects of one of the moſt celebrated governments that has exiſted; but a better direction for me, would have been by Cremona and Mantua.

* *Henſieri ſul Govern. de Fiumi.* Breſcia, 1782.

Verona.

Verona.

The meadows here are cut thrice, and fed once; are never ploughed, if good and well watered. Water for irrigation here, as in all Lombardy, is meaſured with great care and attention, by what is called the quadrata, which is a ſquare foot (the Veroneſe foot is to the Engliſh about as twenty are to twelve). Twelve quadrate are ſufficient to water five hundred campi of rice-grounds (about three hundred and eighty Engliſh acres), and the price of ſuch a quantity of water, is commonly about three thouſand *zecchini* (1425l. ſterling). The wheels in this city, for raiſing water for irrigating the gardens, are very complete; they receive the water, as in Spain, into hollow fellies. There is one in the garden of the Daniele monaſtery, for watering about four campi, which are ſaid to yield a revenue of three hundred zecchini; which is one hundred zecchini, of 9s. 6d. per Engliſh acre. The wheel raiſes the water about twenty-five feet, receiving its motion by the ſtream; a low wall croſſing the garden, conveys the water in a trench of maſonry on its tops; and a walk paſſing along the centre of the garden, the wall there is open, to admit the path; the water ſinking in a ſyphon, and riſing on the other ſide, to the ſame height, paſſes again along the wall, in the ſame manner as canals are carried under roads in Piedmont, &c. The wheel has double fellies, for giving water on both ſides into troughs, which unite in the ſame receiver, and the waſhers for giving the motion are placed between the fellies. The whole apparatus, complete, coſt three hundred zecchini.

To Vicenza.

There are in this tract of country, ſome perennial meadows watered, quite upon a level, which have a very good aſpect: the exiſtence of ſuch ſhould make us queſtion the propriety of the Lodizan ſyſtem of ploughing, where water is ſo regularly at command.

Padua.

The country, from Vicenza to this city, is not watered, like many other diſtricts of Lombardy. The practice is very well known; and there are rice-grounds about Padua, but not nearly the uſe made of water which is found in the Milaneſe; yet the rivers in the Venetian ſtate belong to the prince, as well as in other parts of Italy, and water is conſequently to be bought: but there is not the ſame right to conduct it at will, and conſequently the water itſelf might almoſt as well not exiſt.

To Venice.

In this tract I ſaw no irrigation, though the whole is very low, and quite lev el

Venice.

Venice.

The ſame admirable law, that takes place in the Milaneſe, for enabling every man to conduct water where he pleaſes, is found in the Venetian ſtate alſo, contrary to my information at Padua; but ſo many forms are neceſſary, and the perſon who attempts it, muſt fight his way through ſo much expenſive litigation, that it is a dead letter, and nothing done in conſequence. I was farther told, that it is a principle of the Venetian code, that not only all rivers, but even ſprings, and rain itſelf, belongs to the Prince: an idea worthy of this ſtern and tyrannical government.

ECCLESIASTICAL STATE.—*Bologna.*

I ſaw no watered lands.

TUSCANY.

I ſaw no irrigation in Tuſcany; and, from the intelligence I received, have reaſon to believe, that the quantity is not conſiderable; ſome meadows, however, are watered after mowing. The beſt meadows I heard of, are about Poggio, Caiana, Villa Sovrana, ten miles from Florence.

DUTCHY OF MODENA.

The quantity of irrigated land in the Modeneſe, is but ſmall; it does not amount to more than ſix biolche in eighty, nor have they more than fifteen perpetual water-mills in the whole territory. From Modena to Reggio, there is a ſprinkling of theſe meadows, the canals for which, taken from the Lecchia, are not large; all, whether watered or not, are manuring, with black well rotted compoſt, and have a very neat countenance.

DUTCHY OF PARMA.

The country from Reggio to Parma, is not without watering, but the quantity is inconſiderable; there is, in this line of country, a great inferiority to that from Modena to Reggio; not the ſame neatneſs nor attention, in any reſpect; there are mole-caſts in the meadows, a thing unſeen before; and though there are much cattle and ſheep, yet the features of the huſbandry are worſe. From Parma to Firenzuola, not an hundredth part of the country irrigated, yet there is a good deal of graſs, and in ſome places in large pieces.

PIEDMONT.—*Paveſe, &c.*

For ſome miles in the Sardinian territories, there are a good many meadows, but very few watered. I paſſed two ſmall channels of irrigation, but the quan-

tity was inconſiderable. If a map of theſe countries be examined, there is the appearance of many rivers deſcending from the Appenines, and falling into the Po, but the uſe made of them is ſmall. It is remarkable, that all the way by Tortona, Alexandria, &c. to Turin, the quantity of irrigation, till almoſt cloſe to the laſt mentioned city, is quite inconſiderable, not one acre, perhaps, in a thouſand. What an idea can be framed of Piedmont, by thoſe who paſs through it from Mont Cenis, and quit it for Milan or Tortona, without ſeeing it from Turin to Coni?

SAVOY.

In the mountains of the Alps, by Laneſburgh, &c. they mow their watered meadows once only, but in the plain twice.

From this detail of the irrigation of Lombardy, it muſt be apparent, that, for want of laws ſimilar to thoſe which take place fully in Piedmont, and the Milaneſe, and partially in the republic of Venice, no ſuch exertions are ever likely to be made in a free country. We can in England form no navigation, or road, or make any treſpaſs or private property, without the horribly expenſive form of an act of parliament; we cannot even incloſe our own property, without the ſame ceremony. Nor is it only the expence of ſuch applications, but the neceſſity of them generates oppoſition at every ſtep, and a man muſt fight his way through country-meetings, through attorneys, agents, council, witneſſes, and litigation,—in a manner odious to every liberal feeling, and at a ruinous expence, before he is at liberty to improve his own eſtate, without any detriment to others; every idea of ſuch works, therefore, in England, as we have ſeen common in Lombardy, is viſionary and impracticable; and we muſt continue to view, with eyes of envy and admiration, the noble exertions which have been made and perfected in that country, and which, in truth, very much exceed any thing we have to exhibit in any walk of agriculture in this iſland:—an example to hold up for imitation, and an ample field of practical ſtudy.

SECT.

SECT. II.—OF CATTLE.

PIEDMONT—*Nice to Coni.*

In this part of the Alps, the breed of cows reſembles the Alderney, in horn, colour, and ſize. They are uſually cream-coloured, or pale yellow, but with black around their eyes; black tail, and ſome of them legs alſo; like the Poictou breed in France.

Turin.

Price of a plough ox, 150 liv. to 300 liv. A good cow, 110 liv.

The method of fattening, in the plain, the cattle called *moggie*, from the mountains of Suza and Buſſolino, as given by the Agrarian Society, deſerves attention. They begin, by putting them in airy ſtables, healthy, and well lighted; bleed once or twice; anoint the bodies of the cattle; dreſs them well at leaſt twice a day; give water mixed with rye-flour; in the evening, feed with a certain mixture called *condut*, compoſed of elm-leaves, with ſome hay of the ſecond or third cut, or clover-hay; to which they join a meſs of well pulverized walnut-oil-cake: on this mixture they pour ſome boiling water, well ſalted, and ſtir up the whole together; and mixing, at the ſame time, an eymena of bran, according to the number of *moggie*; the pap, thus prepared, is turned into a tub, and, ſome hours after, it is given to the cattle, who eat it with an avidity that marks a delicious food; continuing this method ſome time, they caſt their hair, grow ſmooth, round, fat, and ſo improved, as to ſell frequently at double the price *.

MILANESE—*Milan.*

Examining the ox-ſtalls of a farmer near the city, I found his ſtandings 6½ feet wide, and made almoſt like my own at Bradfield; except that, inſtead of a ſtep and gutter, he has a trench at their heels, in the Dutch method. I thought the houſe too cloſe and hot; yet there were air-holes, but all ſtopped, the farmer ſaying, that a cow gives more milk for being kept hot; but in ſummer the ſheds are open, and quite cool. They begin to work their oxen at four years old, and continue till ten, ſometimes till twelve, but after ten they do not fatten ſo kindly. They all draw, as in Piedmont, by the withers; fine ones ſell at thirty louis the pair. A pair will draw 4000 lb. of hay, each pound 28 oz. on a waggon that weighs 1000 lb. more, with wheels not three feet high, and

* *Memorie della Società Agraria*, vol. i. p. 73.

wooden axles. 4000 lb. at 28 oz. Milaneſe, are 6777 lb. at 16 oz. Engliſh; and three tons being only 6720 lb. this is a conſiderable load, in ſuch a vehicle, and ſhould imply no bad method of drawing, yet I cannot like it ſo well as by the ſhoulders. They are never ſhod, except on ſtoney hills.

This farmer fattens his oxen in winter with lintſeed cake, giving 5lb. or 6lb. a day to each beaſt, and as much hay as they will eat; the beſt for them, that of meadows not watered. When it is ſcarce, they ſubſtitute forage of maiz, ſown thick for mowing; and this hay they cut in a chaff-box, to the length of one or two inches.

But the great object in the vicinity of Milan, as well as in the Lodizan, &c. is a dairy; I viewed ſeveral conſiderable ones, from four to ſeven miles from the city, and had my inquiries very ſatisfactorially anſwered. Some of the particulars deſerve noting, for I ſhould remark, that all the dairies of the Milaneſe are very famous; and few produce cheeſe, that is not ſold under the general name of Parmeſan. They buy in, about the end of October, Swiſs heiffers, with calf, generally at two years and a half old, under contract, that if they do not calve, or do not give milk from four teats, the bargin is void: the price, on an average, 13½ louis. They keep ſo long as till fifteen years old, or ſo long as they breed. Till the age of ſix years, the milk augments annually, but afterwards diminiſhes. They are ſold lean at 15 to 36 crowns each, 6 liv. (at 8d.) The beſt two or three cows, in a dairy of forty or fifty, will give thirty-two bocali of milk per diem; but, in common, twenty-four, or eighteen Engliſh quarts. The cows are moſtly of a dark brindled red colour, with ſmall horns *; and it deſerves noting, that the beſt made cow in fifty-five, *quaſi* fattening, was the beſt milker.

In reſpect to cheeſe, a dairy of fifty-five, which I viewed, make three hundred and twenty in a year, at 40 lb. on an average, or 12,800 lb. or 232 lb, per cow (380 lb. Engliſh), at 90 liv. per 100 lb.; in all, per cow, in cheeſe, 7l. 10s. Engliſh. The butter amounts to 12 lb. to every cheeſe of 40 lb. at 26*ſ.* per lb.: 3840 lb. which, at 26*ſ.* are 4992 liv. (166l. 8s. Engliſh, or, per cow, 3l.) The calf, at eight or fifteen days, ſells at 72 liv. per 100 lb. nett, and being weighed alive, 28 lb. per 100 lb. is the deduction. I do not clearly underſtand this note, on reviſion, but as veal at Milan is about the ſame price as in England, I ſhall call the calf 10s. To fifty-five cows, ſeven ſows and a boar are kept, which breed forty hogs that are reared; twenty ſold in ſpring, and twenty in autumn, average 1½ louis each; in all for hogs, 60l. Engliſh.

† It is remarked by an Italian writer, that in chuſing cattle, the horns muſt not be overlooked; the larger theſe are, the worſe. The Swiſs cows that are reputed the beſt, have ſmall horns; and, on the contrary, thoſe of Sardinia, that are poor milkers, have very long ones. *Elementi D'Agricoltura di Mitterpacher*, tomo ii. p. 257, notes.

Recapitulation,

		£.	s.	d.
Recapitulation, per cow.—Cheeſe,		7	10	0
Butter,		3	0	0
Calf,		0	10	0
Hogs,		1	2	0
		12	2	0

The account of a dairy taken next door to me, in Suffolk, is complex, and ſuch as not one man in twenty keeps accounts particular enough to aſcertain; it may, therefore, be eaſily ſuppoſed, that greater difficulties occur in a foreign country, through the medium, not only of a different language, but of different manners and cuſtoms. This account was given partly as an actual one of fifty-five cows, and partly by calculation; but in ſuch a number of cows, there will be ſome dry; there will not be fifty-five calves ſold from fifty-five cows; hogs muſt, for ſuch a produce, have ſome corn given them, though not much; and I ſhould conſider this eſtimate rather as what a good cow ought to do, barring accidents and exceptions, than as a fair average of a large number.

The expences, however, are high, as well as the produce; among others, there are the following to this dairy of fifty-five:

		liv.
Chief dairy-man, the *cazaro*.—Wages,		130
Five moggii of maiz, at 20 liv.		100
One ditto wheat, at 34 liv.		34
Half ditto rye, at 18 liv.		9
One ditto of white rice,		44
One hog, of 120 lb. at 15*ſ.*		90
Lodging, fuel, ſalt, and butter,		
The under dairy-man, *ſotto cazaro*.—Wages,		127
Board in the farmer's houſe,		
Three men, at 70 liv. each,		210
3½ moggii maiz, at 10½ liv.		210
½ ditto rye, at 3½ liv.		63
¾ ditto rice, at 2¼ liv.		99
½ ditto mullet, 1½ liv. at 18 liv.		27
Towards board, 20 liv.		60
Land enough for their flax,		
Two children, for the hogs, at 30 liv.		60
Five faggots per diem, at 5 liv. the 100 4 liv. if large,		60
		1323

Here are above 44l. Engliſh, without knowing at what to calculate the three other articles; probably they would raiſe it to above 20s. a cow. There is likewiſe the wear and tear of the dairy implements, ſalt, oil, and many ſmall articles; beſides hazard, and the loſs by difference between the ſale of old cows and the purchaſe of young. In regard to the management of the cows, they eat in winter, that is, from the middle of December to the end of March, nothing but hay, and the allowance is 21 lb. of 28 oz. each cow, per diem; this is 2184 lb. of Milan, or 3559 lb. Engliſh, or about 1½ ton. This ſingle article of expence, without any other conſideration, would make a very great produce neceſſary, or the farmer could not live. They milk at break of day, and ſometimes before it: in the evening, two hours before ſun-ſet: the quantity moſt in the morning. The beſt cheeſe is made when the cows feed on white clover, which comes of itſelf the ſecond year, where red clover was ſown, which occaſions a vulgar notion here, that red clover changes into white. This ſecond year's white clover is better than perennial meadows for cheeſe. For one fortnight in a year, they ſoil their cows,—the laſt half of March,—and the graſs goes thrice as far as when eaten in the field; yet they never do it at any other ſeaſon. The moſt ſingular circumſtance, is that of their ſtalling their cows, to empty racks, moſt of the day and all the night; they are turned out at eight or nine in the morning, for three or four hours, and all the reſt of the twenty-four they have nothing. I inquired particularly into the motives for this very extraordinary practice, and was aſſured, it was neceſſary to make good cheeſe; as without it the milk would not have the requiſite richneſs. During ſome ſeaſons of the year, and in very wet or bad times, they give them, during this faſt, a ſmall quantity of hay; but the practice is confined to ſuch times, and is an exception from the general rule, which is decidedly that the cows muſt not eat graſs at pleaſure. It is ſo very ſingular a practice, as certainly to deſerve experiment in England. The French practice, of milking thrice a day, is quite unknown.

The method of making the cheeſe known in England by the name of Parmeſan, becauſe the city of Parma was once the *entrepot* * for it, was an object I wiſhed to underſtand as well as poſſible. The idea is, that all depends on ſoil, climate, and irrigation; and the boaſted account, that the Kings of Spain and Naples, in order to make ſimilar cheeſe in their territories, at leaſt for their own tables, had procured men of ſkill from the Milaneſe for this purpoſe,—contribute to give a readineſs every where in anſwering queſtions, as they are all very well perſuaded, that ſuch cheeſe can be made no where elſe.

* This is the general opinion, but a late writer has ſhewn that it is an error, and that Parma and Piacenza were once the country in which the beſt was made.

In

In order that I might view the proceſs to the beſt advantage, the Abbate Amoretti conducted me to the dairy in queſtion, belonging to the houſe of Leti. It is, in the firſt place, neceſſary to obſerve, that the cheeſes are made entirely of ſkimmed milk; that of the preceding evening, mixed with the morning's milk: the former had ſtood ſixteen or ſeventeen hours; the latter about ſix hours. The rennet is formed into balls, and diſſolved in the hand in the milk; the preparation is made a ſecret of, but it is generally known, that the ſtomach, of the calf is dreſſed with ſpices and ſalt. The rennet was put to the milk at twelve o'clock, not in a tub, but in the chauldron or boiler, turned from off the fire-place at ten o'clock; the heat 22 degrees of Reaumur's thermometer, and common to 24 degrees (81¾ Fahrenheit's), the atmoſphere being at the ſame time 16⅔ (70 Fahrenheit's). In ſummer, the whole operation is finiſhed by eight in the morning, as the heat ſours the milk if in the middle of the day. At one o'clock the cazaro examined the coagulation, and finding it complete, he ordered his ſotto cazaro to work it, which he did, with a ſtick armed with croſs wires, as deſcribed in *Annals of Agriculture*; this operation is, inſtead of cutting and breaking the curd, in the manner it is done in England, free from the whey. When he has reduced it to ſuch a firmneſs of *grain* as ſatisfies the cazaro, it is left to ſubſide, till the curd being quite ſunk, the whey is nearly clear on the ſurface; then the cauldron which contains it, is turned back again over the fire-hearth, and a quick fire made, to give it the ſcald rapidly; a ſmall quantity of finely powdered ſaffron added, the ſotto cazaro ſtirring it all the time with a wired machine, to keep it from burning; the cazaro examined it, from time to time, between his fingers and thumb, to mark the moment when the right degree of ſolidity and firmneſs of grain is attained. The heat was 41 deg. (124½ Fahrenheit), but it is often 44 (131¼ Fahrenheit). When the cazaro finds it well granulated by the ſcalding, he orders his deputy to turn it off the fire; and, as ſoon as a certain degree of ſubſidence has taken place, empties about three-fourths of the whey, in order the better to command the curd. He then pours three or four gallons of cold water around the bottom of the cauldron, to cool it enough for handling the curd; then he bends himſelf into the veſſel, in a formidable manner, to view it, reſting his feet againſt the tub of whey, and with his hands looſens the curd at bottom, and works it into one maſs, ſhould it not be ſo already, that it may lie conveniently for him to ſlide the cloth under it, which he does with much apparent dexterity, ſo as to incloſe the whole in one maſs; to enable himſelf to hoiſt it out the eaſier, he returns in the whey, and taking out the curd, reſts it for ten minutes or a quarter of an hour in a tub to drain. The vat, in the mean time, is prepared in a broad hoop of willow, with a cord round to tighten it, and widens or contracts at pleaſure, according to the ſize of the cheeſe. Into this vat the curd is fixed, and the cloth folded over

over it at top, and tucked in around. This is placed on a table; ſlightly inclining, to carry off the whey that drains from the cheeſe; a round plank, three inches thick, ſhod with iron, like the block-wheel of a barrow, is laid on the cheeſe, and a ſtone about thrice the ſize of a man's head on that, which is all the preſs uſed; and there ends the operation. The cheeſe of the preceding day was in a hoop, without any cloth, and many others ſalting in different hoops, for thirty or forty days, according to the ſeaſon,—thirty in ſummer and forty in winter. When done, they are ſcraped clean, and after that rubbed and turned in the magazine every day, and rubbed with a little lintſeed-oil on the coats, to be preſerved from inſects of all ſorts. They are never ſold till ſix months old, and the price 90 liv. the 100 lb. of 28 oz.

The morning's butter-milk is then added to the whey, and heated, and a ſtronger acid uſed, for a freſh coagulation, to make whey-cheeſe, called here *maſcho-pino*. Little ones are kept in wooden caſes, in the ſmoke of the chimney.

Upon this detail I am to remark, that the rules that govern the operation of making cheeſe in the Milaneſe ſeem to be very different from thoſe which are attended to in England. Theſe are marked diſtinctions.

I. Starving the cows during ſo large a portion of the day.
II. Breaking and ſcalding the curd.
III. Light preſſing.

The mode of feeding, which theſe farmers purſue, they think eſſential to good cheeſe; and that if the cows were allowed to paſture all day long, it would be difficult, perhaps impoſſible, to make cheeſe of equal goodneſs. It would be idle to reaſon upon a propoſition, which demands in other countries experiment alone.

The breaking of the curd and ſcalding is abſolutely different from ours, and apparently a method infinitely ſuperior; our breaking by the hand, and cutting into cubes and other ways, are groſs, and render it difficult for the ſcalding whey to operate equally; but in the Italian method it is broken minutely; and, by keeping the heating whey conſtantly ſtirring, the ſcald is equal throughout; and, operating on the minutely divided curd, muſt take a more regular and a greater effect. I deſcribed to the cazaro the method uſed in England, and aſked his opinion, on which he replied—"Il voſtro formaggio in quel modo non puol'eſſere troppo buono: come è la grana?" By referring to the grain of the cheeſe, it is plain he thought that the texture of it demanded this way of operating.

In regard to preſſing; all with whom I converſed were much againſt any very heavy weights; and ſeemed of opinion, that a good cheeſe might be preſſed

preſſed into a bad one. Firmneſs, weight, and ſolidity, they contended, ſhould ariſe from the right fabric of the cheeſe, and from adapting the fabric to the land and to the ſeaſon, but never from much preſſing, which would be a bad way of remedying either evils or miſtakes. Hoved cheeſes are very rare with them, which may poſſibly proceed not only from the granulation given by their method of ſcalding, but alſo from their moderate preſſing. However it muſt not be imagined that the excellency and peculiarity of Parmeſan cheeſe depend altogether upon the fabrication; their own idea is probably very juſt, that ſoil, climate, and irrigation come in for their ſhare; and that the abundance of certain plants has an influence; but this laſt cauſe will not have much ſtreſs laid on it, ſince clovers are found to be the chief plants.

I ſhall not quit this moſt intereſting diſtrict, without recommending it ſtrenuouſly to thoſe who would wiſh to give themſelves a completely good farming education. For ſuch a purpoſe, Codogno would be a proper ſtation; for it is ſurrounded by great dairies, and contains the largeſt magazines of cheeſe of any town in Lombardy; the conſequence of which is, a regular intercourſe with all the dairy maſters of the Lodizan. Much uſeful knowledge might here be gained in irrigation, and in making cheeſe.

The oxen of this dairy farm begin to work at four years old; and are ſold at eleven or twelve years old, from 9 to 12 louis each. A pair will plough eight pertiche a day; and draw, waggon included, 3000 lb. of 28 oz. twenty miles.

Mozzata.

They practiſe a ſingular method of fattening oxen here. They put chopped ſtraw, a little hay, the leaves of maiz, and alſo ſome flour of it, into a tub, and pour in hot (not boiling) water; and as they give this ſoup to the beaſt, they add for each a handful of oil-cake in powder, or, for want of that, of elm leaves in powder; oak leaves they give green. Another food in uſe is, powdered acorns, which is given inſtead of oil-cake, and with good ſucceſs.

Lodi.

The cows here are generally of a blood red colour, long, lank, and ill made. In a dairy of ninety, they make, for one hundred and ſixty days, one cheeſe a day, of 60 lb.; but in April and May it is of 70 lb. After St. Martin, the beginning of November, greater, but not every day: in ſeven months, 190 cheeſes; and in the reſt of the year, 170; in all, 360; this is 240 lb. per cow. In feeding, they give the cows nothing from four in the afternoon till nine the next morning, unleſs the weather be very bad, and then a little hay. In making the cheeſe, I found very little variation in the practice from that already deſcribed.

ſcribed. For the coagulation, or what our dairy-wives call *ſetting*, they heat the milk gradually, and take care not to do it too much at once. In the great heats of ſummer, they ſet it without heating, and even put ice or ſnow (with which every dairy is provided) to cool it; but they do not conſider the heat at ſetting to be a point of much conſequence, as a little more or leſs heat makes no difference. The curd is broken exactly as deſcribed before, with two machines, one of wood only, the other armed with fine wires, and the ſaffron added during that operation. Scald it as at Milan, and, upon doing this with ſkill, they aſſert, that much depends; as by more or leſs ſcalding they can remedy certain deficiencies in ſoils and plants. The reſt of the operation is juſt as already deſcribed, and all the utenſils the ſame; the weight ſomething leſs than at Milan; and here as great enemies to much preſſing. The cheeſe made yeſterday is all honey-combed in the coat, and as yellow as was, a pale yellow: whereas at Milan the new cheeſes are quite white. Theſe honey-combs wear out by ſcraping after ſalting, which is for thirty-ſix or forty days; they are then coloured, and there is given to them an appearance of a whitiſh cruſt, or efflorescence artificially. They are preſerved by oiling, as at Milan. Good cows give about five gallons of milk per diem; the beſt of all, ſix. Sixty cows require 100 pertiche for ſix months in ſummer.

Codogno.

The produce per cow is here reckoned at 100 lb. of cheeſe *, at 28 oz. at 22½*ſ.* per lb. and 80 lb. of butter, at 24*ſ.* The calf ſells at 20 liv, at fifteen days old; and the produce of hogs, 12 ſows to 100 cows, which pay about 10 liv. per cow.

Milaneſe.	*liv.*	*ſ.*	*Sterling.*	£.	s.	d.
100 lb. cheeſe, at 22½*ſ.*	112	10	—	3	15	0
80 lb. butter, at 24*ſ.*	96	0	—	3	4	0
Calf, - -	20	0	—	0	13	4
Hogs, - - -	10	0	—	0	6	8
	238	10		7	19	0

Thirteen pertiche of land are neceſſary to carry a cow through the year, which they cut for hay thrice, and feed once. Such land bought, ſells at 300 liv.

* This is the general idea; but let it be noted, that the particulars of two dairies I took, one of which was near Milan, were different; one 232 lb. per cow; the other, near Lodi, 240 lb. per cow; yet there is, near Milan, a notion, that the produce is 100 lb. per cow. The difference, probably, is this, that upon a general calculation of all the cows of a diſtrict, good, bad, and indifferent, dry, and giving milk, the quantity is 100 lb.; but in certain capital dairies, and reckoning only the cows in milk, it is more than double.

and

and lets at 10 liv. The greateſt dairy in the country, 110 cows, and the price ten louis each. In ſummer, they milk at four o'clock in the morning, and at ſun-ſet. Make the cheeſe at eleven in the forenoon; in winter at any time. Skim all the milk, and never ſet it for coagulation without heating it by fire. In other reſpects, the manufacture is conducted as already deſcribed. They colour the coats with earth, and the whitiſh efflorescence is given with rye-meal. When the graſs is oldeſt, it always give the beſt cheeſe, but the produce, after being down four years, declines ſo much, that the almoſt general practice is to plough it.

View the magazine of cheeſe, at Codogno, of Sig. Bignami, and of Sig. Stabilini;—the latter are immenſe. Moſt of it is ſold in Italy, much in Spain, and leaſt of all in France; there is not a ſolid cheeſe in that kingdom that is eatable, and yet they conſume little Parmezan!

Condogno to Crema.

Meſſrs. Bignami had the goodneſs to conduct me to a great farm, two miles from Codogno, in the way to Crema;—here I found, that coagulation takes, according to the ſeaſon, from one to four hours; in ſome parts of the Milaneſe, the cazaro informed me, that they *ſet* the milk without warming: here never; always heat it by fire. The *caggio* (rennet) is in balls about twice as large as a pigeon's egg, put in a linen coarſe cloth, and rubbed, holding it in the milk, till it is diſſolved. In this dairy, after three hours coagulation, the milk was as hot as if freſh from the cow. Quantity of ſaffron, ½ oz. to a cheeſe of 60 lb.—945 lb. of milk, of 28 oz. make a cheeſe of 60 lb. weighed ſix months after. The ſame quantity of milk, in ſpring and in autumn, makes more cheeſe than in ſummer. Beſt and moſt from old graſs, but a cazaro who really underſtands his buſineſs, will make all alike; and the idea here is that fabrication is all in all. A cheeſe of 30 lb. will be as good as one of 100 lb. The ſcalding in their manner, is to granulate the curd, and, united with ſo ſmall a preſſure, leaves cavities in the texture of the cheeſe, that fill with an oleaginous liquid, and form the peculiar excellence of Parmezan cheeſe. With the methods uſed in England, ſuch cavities ſpoil a cheeſe. I muſt, however, remark, that ſuch Parmezan as was common many years ago, in which theſe cavities, and their contents were of a texture that would allow of drawing out like a thread of glue, is not ſo common now. The ſolid cheeſe, without cavities, common at preſent, is not much better than our North Wiltſhire, and is apt to dry much ſooner, if equally kept. *Quere*, if this declenſion of quality is not to be imputed to their ploughing all the country? When their cheeſe gained its great reputation, it was made from old meadows; now all is from arable land. Here it is kept five or ſix years,—never till ten. Walking with the farmer,

the maſter of eighty cows, into his fields (1750) pertiche), I begged him to pick the plants in the order of his eſtimation for cheeſe, which he did;—firſt, *trifolium repens*; ſecond, *trifolium pratenſe* and *plantago lanceolata* equal; third, *chicorium intybus*. Theſe he eſteemed capital. The *ranunculus repens* bad; all the graſſes, properly ſo called, bad, on compariſon with thoſe above; but *lolium perenne* the beſt, if it come naturally; bad, if ſown. *Gallega officinalis* bad. They ſometimes do not ſow any thing to make a meadow, leaving the wheat-ſtubble to cover itſelf; a barbarous practice, ſince they confeſs, that in the firſt year it yields little. There were dung-hills in moſt of the fields, well mixed and rotten, to be ſpread in winter. Feed the cows, in winter, only with hay, and 20 lb. of 28 oz. the daily allowance; the price now 7½ liv. per. 100 lb. I forgot to remark, that all the milk-trays are of copper: and that ice is in every dairy, to put into the churns with the cream. The cows are here fed, as every where elſe in the Milaneſe, but a few hours in twenty-four; yet longer than in ſome diſtricts, for they are abroad ſeven hours; they eat nothing while tied up in the ſheds.

In 1733, there were in the Lodizan 197 dairies: in 1767, there were 236, each of which had 120 cows, on an average, making 290 cheeſes each dairy per annum; in thirty-four years, increaſe—39 dairies, 4680 cows, 11,310 cheeſes, and value 848,210 liv.* This is Count Carli's account, but I ſuſpect an error †. as I heard no hints of any decline; and at Codogno, the dairies were calculated for me, apparently with attention, at 213 each, making 310 cheeſes in a year, or 66,030 cheeſes, of 50 lb. each, or 3,301,500 lb. of 28 oz. at 1 liv. a lb.; this makes 110,047l. and the account I received was, that, of this quantity, two-thirds were exported.

In regard to the origin of this cheeſe, it deſerves notice, that it is not three centuries ſince this great advantage of irrigated meadows has been here known; and I may obſerve, that the Ciſterſian monk who has written ſo well—*Sull'Irrigazioni de Prati*, in the *Atti della Societa Pat. di Milano*, ſeems to admit, that the original manufuctures of Parmezan cheeſe was in the territory of Parma; and refers to original papers for ſhewing, that Milan was ſupplied, three centuries ago, with this cheeſe from Parma. A clearer proof of this cannot be produced, than that in the ledgers of the monaſtery of Chiaravalle, there are entries of the purchaſe of cheeſe from Parma, which, moſt aſſuredly, could not have taken place, if ſuch cheeſes had been made at home. And this ſeems to be confirmed by the account of the entry of Louis XII. into Pavia, in 1499, given by Franceſco Muralto, juris conſulto of Como, who ſays,—"Multa

* *Carli*, tom. i. p. 317.

† It muſt be a groſs error to calculate the dairies at 120 cows, *on an average*; for in all my inquiries, I heard but of one that reached 110.

fuere

fuere per Papienſes dono regi tradita et inter cetera formæ centum caſei Placentinæ civitatis." It is alſo worth obſerving, that though they did not make good cheeſe at this period (as we may judge, from their buying it elſewhere), yet ſome cheeſe was made at Tecchione, a farm belonging to them, of the weight of 14 lb. per cheeſe, as it appears by their ledgers for the year 1494*.

Venice.

This city is ſupplied with beef from Boſnia, Carinthia, Styria, and Hungary: at preſent the export from thoſe countries is prohibited, on account of ſupplying the Emperor's armies in Hungary. Mutton from Dalmatia, and Boſnia.

Ecclesiastical State.—*Bologna.*

In their cow-houſes they have the ſame ſtep at the heels of the beaſts as I have in my own, and which I copied from Mr. Bakewell many years ago; but they have applied it to their horſe-ſtables alſo, which I never met with before; yet it is an obvious improvement, which well deſerves imitation. The floors of their ſtalls are level.

Tuscany.

Though the quantity of cattle of every kind in this country is much inferior to what it ought to be, yet is the art of fattening an ox well underſtood. In ſummer they feed on mown clover and *ſaggina* (the great millet, *holcus ſorgum)*; alſo on maiz, and a mixture of all ſorts of corn and pulſe, called *farrana*. Price of an ox, 45 ſcudi (at 5s. 8d.); a cow, 30; a ſheep 1; a horſe, 20; a hog, 7.

Account of a Dairy of Eight Cows, at Vilamagna, in Tuſcany, belonging to Conte Orlando del Benino.

	Scud.	*liv.*	*ſ.*
Eight cows coſt - - -	85	2	0
Produce, firſt year, in butter and milk, -	83	4	2
Second year, value of the cows and 3 calves,	92	3	4
Produce.—Calves, - - -	44	3	15
Milk and butter, - -	78	6	9
	127	3	4
Cheeſe, - - -	3	0	4
Value of the cows, - - -	84	3	4
	214	6	12

* *Atti*, vol. ii. p. 220, 221.

Expences.

	Scud.	*liv.*	*ſ.*
Value of the cows,	92	3	4
Dairy man,	12	0	0
Bran and bull,	6	5	4½
Saggina and clover ſown for them,	3	0	0
Profit,	100	5	3½
	214	6	12
Which, on 8 cows, is per cow,	12	10	8
At 5 liv. 15*ſ.* the dollar, and 47d. a dollar ſterling	£. 3	3	6
Which is per week,	0	1	3

In which experiment almoſt the whole of this was profit, becauſe no fewer cattle of any other ſort were kept; but it muſt be obvious, that 1*s.* 3d. a week is, according to our ideas, a very poor return for keeping a cow *. I copy this account from Sig. Paoletti, with whom I had the pleaſure of conferring perſonally on agriculture, and who informed me, that at Villamagna they begin to work their oxen at two years and a half old; they change ſome every year; and gain by their improvement, while worked, about 6 ſcudi (of 5s. 8d.) the pair, on an average, per annum; buy at 70 ſcudi, and ſell at 76. Cows give two fiaſce of milk per diem, during eight months; price 4*ſ.* each.

MODENA.

Regiſter of all the live-ſtock in the Dutchy of Modena, taken in June 1771: —Oxen, 42,615; cows, 61,445; calves of one year, 24,172; calves, 21,326; horſes, 8,313; mules, 836; aſſes, 11,543; hogs, 137,326; ſheep, 329,015; goats, 35,518. Augmentation in the reſt of the year; great cattle, 12,000; ſmall, 38,000.

PARMA.

Many and great dairies in the Parmezan; ſome to ſixty cows, and numbers from twenty to thirty; and thoſe who have a few cows, carry their milk to ſome neighbouring dairy, and receive cheeſes in proportion to the quantity; but this cheeſe has not the reputation at preſent of being ſo good as that of the Lodizan. As this country gave its name to the beſt cheeſe in Europe, and once certainly made the beſt, I was deſirous of knowing how far the mode purſued in the manufacture, differed here from that of the Lodizan: in the dairy of a

* *Penſieri*, p. 233, 236.

farmer

farmer of the Count de Schaffianatti, I had this opportunity. The apparatus is nearly the ſame, except that the ſtick with which the curd is broden, and which in the Lodizan is armed with croſs wires, is here only a buſh, the branches of which are drawn a little together by a ſtring; this is not ſo effective as fine wire, and is a variation in a point of importance in giving a fine *grain*. I have remarked already, that the board which in preſſing is laid on the vat, is in the Lodizan one and a half or two inches thick; here it is five or ſix inches, and heavy; and the ſtone uſed to preſs it four or five times larger, yet the cheeſes here are not often more than half the ſize of the others; this variation, in a circumſtance that cannot be uneſſential certainly deſerves notice; if ſo very light a preſſure in the Lodizan is given, the cheeſe which is ſuperior to all others, it undoubtedly ſhould lead the farmers of Parma to examine whether the inferiority of their cheeſe does not ariſe wholly or in part from theſe variations; the country, it is true, is not watered to one-tenth of what the Lodizan is, and the cows feed in perennial meadows, inſtead of the paſturage of arable land. The trays here are of wood, inſtead of copper for the milk; and it is ſkimmed, as at Lodi, before making the cheeſe. The coagulation is made uſually in three quarters of an hour, if the milk be what they call wholeſome; that is, if it have no particular quality that demands a variation, in which caſe it is coagulated in half an hour: they vary the ſcalding alſo; for bad milk they ſcald with a fierce quick fire, but good is done more gently. In managing the lump of curd, when ſettled to the bottom of the boiler, they vary alſo; they preſs it with a circular board, fixed at the end of a ſtick or handle, and then get a milk tray under it; and when they have hoiſted it out, they leave it to drain in that tray about half an hour; at Lodi, ten minutes, or at moſt a quarter of an hour. The common price of the cheeſe 30 liv. (2½d.) the peſo (22 lb. Engliſh.) I taſted it at the table of the Count de Schaffianatti, and alſo at Parma; and the inferiority to the Lodizan is great.

The attention of giving ſalt to cattle and ſheep here, as in every other part of Italy, is regular; they even conſider a plenty of ſalt as ſomewhat eſſential to having proper ſtocks of thoſe animals; and gave me an inſtance, which is remarkable. In the Coursi di Monchio, a valley in which the biſhop is the ſovereign, there is no gabelle on ſalt, and therefore given much more plentifully to cattle and ſheep; the conſequence is, that the numbers of both are much greater, proportionably to all other circumſtances than in any other diſtrict.

SAVOY.

They reckon, at Laneſburgh, that three goats are equal to one cow; the price here is 11 liv. or 12 liv. At Iſle, in Alſace, a good goat ſells from 12 liv. to 30 liv. French, in common 20 liv. Some there are ſo good that two equal a cow; but at Tour d'Aigues, in Provence, it takes four to equal a cow, the price 10 liv. or 12 liv. French.

SECT.

SECT. III.——OF SHEEP.

Nice.

I here obſerved, what appeared very ſingular, a flock of ſheep brought down from the mountains to drink the ſea-water, which is, I ſuppoſe, to ſave ſalt. The gardeners near the town generally keep a few weep, confined in ſties, juſt as hogs in England, and fed with the offal of the garden. I took a ſpecimen of the wool of one of theſe ſtie-fed ſheep; more like goat's-hair than wool; it ſells at 6*ſ.* the lb.

Turin.

The price of ſheep from 10 liv. to 15 liv. The fleece is 8 lb. at 5*ſ.* unwaſhed.

MILANESE.

Throughout this country I ſcarcely ſaw any ſheep, and thoſe few bad.

VENETIAN STATE.—*Bergamo.*

Here I met a flock; an ugly breed; large, long, and ill made; without horns; the wool coarſe and hairy; large hanging ears; and their throats ſwollen almoſt like wens. They have a fabric of woollen cloth here, but the wool comes from Apulia.

Breſcia.

The fleeces here are 4½ lb. (about 2¾ lb. Engliſh,) and ſell at 25 liv. to 30 liv. per peze, not waſhed, which is about 1*s.* Engliſh the pound.

Verona.

Price 30*ſ.* the lb. of 12 oz. (1*s.* the pound Engliſh.)

To Vicenza.

Meet ſeveral flocks; all are clipped twice a year; the breed polled, and much like thoſe, but not ſo large, as on the other ſide of Verona.

Vicenza.

The ſorts of ſheep known here, are *Gentili*, which live only in the plain, not being hardy enough to reſiſt the mountain cold; their wool is longer than of the other ſorts. *Toſetti*, theſe reſiſt the cold well; have ſhort wool, clipped twice.

twice. *Monte Padouana*, are of a much greater ſize; the fleſh excellent; are clipped twice. Price of wool, 2⅔ liv. per pound unwaſhed (the ounce of Vicenza, 12 to the pound is to the Engliſh ounce as 690 is to 480, as I found, by buying an ounce weight there); this price is equal to about 11d. the Engliſh pound. It is remarkable, that they here feed their ſheep in winter, with a mixture, made in a hole in the ground, trodden well in, of *zucca* (gourds) cut in ſlices; the mark of grapes, vine-leaves, and green graſs.—Price of wool here:—Gentili preparata, 6 liv.; Gentili non preparata, 5 liv. 5*ſ.*; Toſetta, 5 liv. to 6 liv.; Teſino, 2, liv. 10*ſ.*; Padouana, 4 liv.; all by the pound of 12 oz. The ounce is to that of England, as 690 to 480; the pound, therefore, equals 17 oz. Engliſh,—5⅔ liv. is above 2s. 6d. Engliſh.

Padua.

Price of ſheep about 2 ducats. In common they clip but once a year; fleece 3 lb.

Ecclesiastical State—*Bologna.*

Price of a good ſheep, 14 pauls (7s.) Produce, per ſheep, of a flock;—lamb, 4 pauls; wool, 3½; cheeſe, 4; in all 11½ (5s. 9d.) per annum; half to the proprietor, half to the peaſant. The wool 3 lb. at twice ſhearing, and at 13 baiocchi the pound (10 baiocchi to the paul, of 6d. leſs a fraction). It is waſhed on the back before ſhearing. There are 25,000 to 30,000 ſheep in the Ferrareſe.

Tuscany—*Bologna to Florence.*

Some flocks of ſheep are ſcattered on the Appenines, of a ſmall and rather pretty hornleſs breed. Near Florence, they cut the lambs in June, and ſell them in September, to thoſe who keep them till March. Price, in September, 10 liv. (7s. 1d.) and in March, for 18 liv. (12s. 9d.); there are few, or none, of two or three years old. They clip but once; weight of the fleece 4 lb. at 1¼ paul per lb.; waſhed before clipping (Engliſh weight and money, the fleece is 3 lb. at 1s. 1d. per lb.) Wethers are, in ſome places, fattened on oats, barley, and hay, and ſometimes with a few raves.

Villamagna.

Thirty-ſix ſheep kept on 483 ſtiori of land, each giving 3 lb. of wool (equal to 2¼ lb. Engliſh), at this year, 1½ paul, and laſt, 1¼ (the paul 5½d.); clipped but once a year, in May, and waſhed before. Each ſheep ¼ of a paul in cheeſe. Thirty-ſix bring, on an average, twenty lambs, which ſell, at five or ſix weeks, at 4½ pauls; at ſix months, 7 or 8 pauls.

Two

Two hundred ſheep from the mountains, that paſs the winter in the Maremma, the expence 157 ſcudi, compoſed of twenty rams, fifty ewe hoggits, one hundred and thirty breeding ewes; fifty lambs kept for ſtock.

	Scud.	*liv.*
Fifty lambs for ſtock,	39	2
Eighty lambs ſold,	12	0
Wool, 7 lb. the pair, at 10 ſcudi the 100 lb.	70	0
Cheeſe, 2¼ lb. to each ſheep, at 6*ſ.* per. lb.	11	0
	132	2
Half to the proprietor	66	1

Expence.

Winter food in the Maremma,	40	0
Two hundred ſheep to a ſhepherd; 24 ſtari of corn for the winter,	12	0
Paſſes, charges, duties, regulated at 6 ſcudi the 100 ſheep,	12	0
Expences of travelling, utenſils, fees, &c.	8	0
Puſturing in ſummer in the mountains,	4	0
	76	0
Half to the proprietor,	38	0
Nett profit to proprietor,	28	1

Which profit, being on a capital of 157 ſcudi, is 18 per cent *.

It is an obſervation of Sig. Paoletti †, that draining the Maremma, and cultivating it, have leſſened the number of ſheep in Tuſcany conſiderably: great flocks, before that period, were kept in ſome mountainous diſtricts in ſummer, and paſtured in the Maremma in winter; but cultivation has changed this. He does not ſay that the people of the Maremma have ſheep of their own, but obſerves, that it is a diminution in number. This is ſufficient to prove, that the improvements in the Maremma have been on falſe and vicious principles; for, if they had been on juſt ones, ſheep would have been increaſed inſtead of leſſened.

Sig. Paoletti recommends that all ſheep ſhould have 1 lb. of ſalt in March, and 1 in October, which makes them healthy, and to yield more wool ‡.

* *Tramontani Del Accrieſcimento Del Beſtiam e Toſcano*, 8vo. p. 96.

† *Penſieri*, p. 207. He mentions their being *prodigioſamente piu numeroſe*, a century before, p. 221.

‡ *Penſieri*, p. 208.

Modena.

Wool here ſells from 2 liv. to 3 liv. per lb. waſhed; equal to 12½d. per lb. Engliſh. There are many ſheep in the mountains, but miſerable things; clipped twice a year.

Parma.

In going to Firenzuola, I examined the wool of a flock, and found it more like the hair of a dog than wool; and all I ſee, which are but few, are alike hairy; moſt of them polled, but ſome with horns; not badly made, but feel worſe. Theſe are the flocks whoſe wool, Monſ. de la Lande ſays, is eſtimable!

Piedmont.—*Paveſe.*

On entering the King of Sardinia's country, and for many miles, ſee little parcels, of from ten to twenty-five, of poor dirty houſed ſheep, feeding on the young wheat. Aſti was formerly famous for wool;—*nelli antichi tempi famoſa per la ſua lane**; but the country contains none at preſent, to ſupport that character.

Savoy.

Unwaſhed wool, 10*ſ.* the lb. of 12 oz.; fleece 3 lb. to 6 lb.; it goes to France or Piedmont. Sheep, 9 liv. to 12 liv. each. Though cattle and ſheep are the great riches of all Savoy, yet no care taken of the breed, and the wool all bad†.

The price of wool, regard being had to that only which is long, coarſe, and bad (but not the worſt), may be ſtated in Lombardy at 1s. Engliſh, the Engliſh pound; ſuch would ſell in England, I calculate, at about 7d. or 8d. per pound.

* *Giulini*, tom. xii. p. 19.

† I may here add a minute on goats: Marquis Ginori introduced the Angora goats into Tuſcany, for making camblets, which manufacture has ſucceeded ſo well, as to be termed *riſpettabile manifattura* by Paoletti. *Penſieri*, p. 220. And it is obſerved by another writer, that if they are not ſuperior to the antient camblets of Bruſſels, they are, at leaſt, equal to them. *Ragionamente ſopra Toſcano*, p. 167.

CHAP. III.

Of the Management of Arable Land.

THE minutes I took, concerning the conduct of arable land, may, for the ſake of clearneſs, be thus divided:—1, Of the courſes of crops. 2, Of ſeed and product. 3, Of the culture of certain plants. 4, Of implements. 5, Of manures.

SECT. I.——OF THE COURSES OF CROPS.

PIEDMONT.—*Chentale.*

A year of fallow common in five or ſix years, during which year the land is never watered, only expoſed to the ſun. Wheat is ſown on fallow; on clover land; always after hemp, becauſe the land is in high order; the ſame after maiz, if well manured; in which caſe alſo after millet ſown in June, otherwiſe meſlin or rye. The fallow for wheat, commonly follows buck-wheat, called here *fromentin*, or millet. Clover is ſown among rye in March, never among wheat. Millet de cottura is ſown in June; millet de reſtuba the end of July, after wheat; and then dung well for hemp.

Turin.

In ſome arable land I viewed, a few miles from this capital, the following moſt extraordinary courſe was purſued, and was mentioned to me as being not uncommon; 1, maiz; 2, wheat; 3, wheat; 4, wheat; 5, maiz; 6, wheat; 7, wheat; 8, wheat.

The year of maiz being conſidered as ſuch a preparation, as to allow of three ſucceſſive crops of wheat. The practice however is barbarous. Upon the farm of Sig. Briolo, the following is the courſe;—1, maiz; 2, wheat; 3, rye; and when the land wants repoſe, clover is ſown upon a ſmall part.

Vercelli.

Upon good wheat land; —1, maiz; 2, wheat; 3, wheat; 4, rye. And in the rice grounds;—1, fallow; 2, rice; 3, rice; 4, rice. They have here an excellent practice, and it extends, more or leſs, over all Piedmont, which is to mow

mow clover by the 10th of May, and to plow the land and plant maiz, which ſucceeds greatly after clover.

MILANESE—*Milan.*

The arable lands never repoſe; but a quick ſucceſſion is reaped. Two crops of bread corn are gained in one year, by ſowing maiz in July, after wheat.

Milan to Pavia.

The courſe common in the rice grounds, is,—1, rice; 2, rice, 3, rice; 4, fallow, and dung; 5, wheat, clover ſown, either with it in autumn, or upon it in ſpring; the former beſt; 6, clover; 7, clover; 8, clover; 9, flax, and then millet the ſame year: and then rice again, as above.

Alſo,—1, wheat; 2, clover; 3, clover; 4, clover; 5, clover; 6, flax, and then maiz; 7, wheat, and clover again. Sometimes after flax, coleſeed for oil. Another courſe,—1, 2, 3, clover; 4, maiz; 5, rice; 6, rice; 7, rice; 8 fallow; 9, corn, and clover.

In the Paveſe.

1, Rye, and then fallowed for, 2, wheat, ſown with clover in February, mown with the ſtubble, and then fed; 3, clover, 4, clover; 5, clover; 6, flax, and then millet; or, inſtead of both, maiz; 7, wheat; 8, wheat, and left, then, ſometimes, to paſturage under clover.

Mozzata.

A courſe common here,—1, clover; 2, winter flax; 3, lupines; 4, maiz, for forage; 5, coleſeed; 6, cabbages; 7, panic; 8, hemp; 9, beans. This courſe will be found to occupy about twelve pertiche in one hundred, and to paſs in ſucceſſion over the whole, for the benefit of variation. Another,—1, wheat, and millet after; 2, common maiz; 3, wheat and millet; 4, common maiz; 5, rye and quarantino; 6, common maiz; 7, rye and quarantino; 8, common maiz. The aſſiduity with which they avoil a fallow, deſerves attention; and it is here effected, as in the ſouth of France, by means of a plant that is aſſerted by many to exhauſt.

Lodizan.

1, Wheat, ſown in October and reaped in June, and the land ploughed thrice, and manured for, 2, wheat again, and clover, called *ſpianata agoſtano*, which is fed till the following ſpring, but ſometimes ploughed the end of autumn; 3, flax; 4, millet. Another courſe, called *coltura maggenga*,—1, break up the

layer for flax; 2, millet; 3, maiz; 4, wheat, the ſtubble of which remains in *ſpianata agoſtano.*

Cremoneſe.

1, Wheat, ſown in October, and reaped in June, the ſtubble ploughed thrice for, 2, wheat, upon which ſow clover the end of February; 3, clover, ploughed in November for, 4, flax, and then millet; 5, maiz; 6, wheat.

Carpianeſe.

1, Maiz; 2, wheat ſown in the ſpring with clover, which is mown with the ſtubble, and remains *ſpianata agoſtano*; 3, clover; 4, flax, and then millet; 5, rice; 6, rice; 7, rice.

VENETIAN STATE.—*Bergamo.*

The land here is conſtantly cropped;—1, wheat; 2, clover, mown in the ſpring once, in time for maiz; 3, wheat; 4, clover. Alſo,—1, clover, or millet; 2, maiz; 3, wheat. By which courſes they have half or a third of their land in wheat every year.

Breſcia.

1, Wheat, and 20 lb. of clover-ſeed in March, per jugero,—the clover cut in Auguſt with the wheat-ſtubble, and then paſtured; in winter dunged: —2, clover, called this year *prato graſſo*, cut thrice; firſt in May, called *il maggiatico* ſecond in Auguſt, called *l'oſtano*; third in September, *il navarolo*:—3, in March ſow flax, which is gathered in June; then plough and ſow quarantino, amongſt which, at the ſecond hoeing, ſow lupines for manure:—4, plough in the lupines and ſow wheat in November, which is reaped in June; cut the ſtubble immediately, and ſow lupines or coleſeed for manure:—5, plough in October, and ſow wheat mixed with rye; reaped in June, and then ſow part with quarentino and part with panic:—6, if a crop of coleſeed is taken, it is ſown amongſt the maiz while growing, which cole is ripe in ſpring, in time to clear the ground for manuring and ſowing the common maiz; if cole not ſown, remains fallow in winter, and ſow *melica* in ſpring,—the great millet.

Verona.

Here, as in all other parts of Lombardy, the land is never fallowed;—1, maiz, called *grano turco*: —2, wheat, and, when reaped, millet, or *cinquantino*; this is the quarintino of the Milaneſe:—3, barley or oats, and, when reaped, ſome other ſecond crop. Wheat is always ſown after maiz, and that after barley

or

or oats. No clover uſed here, except in rice-lands. In the rice-grounds,—1, wheat, reaped time enough for a crop of cinquantino; 2, maiz; 3, clover; 4, rice, &c. &c. Beans are alſo ſown inſtead of maiz, and wheat after them, and prepare for wheat much better. On the dry lands, ſuch as about the Lago di Guarda, &c. no clover, as the land is not good enough.

To Vicenza.

No fallow any where. There is a little clover, and very fine, but the quantity is ſmall: all wheat and maiz, and ſcarcely any thing elſe.

Vicenza.

Wheat is always ſown after clover, and cinquantino after wheat; but nothing prepares ſo well for that crop as beans, ſo that they are called the mother of wheat, *madre della formento*. This idea, in Lombardy, is as old as Gallo, who remarks, that wheat ſucceeds after nothing better than beans, which *in graſſano maggiormente la terra, che non fa ogni altro legume* *; and this he refers to as a cuſtom of the Cremoneſe and the Mantuans. It is equally true in England; and ſuch a combination of authority ought to convince ſuch as yet want conviction, of the utility of beans as a preparation for wheat; more, perhaps, to be depended on than any other preparation whatever. A common courſe near this city, introduced as a variety, is,—1, maiz; 2, wheat and cinquantino. A farmer cultivated a field, during ſome years, in this courſe,—1, maiz; 2, wheat; 3, clover: and to preclude the neceſſity of dung, he uſed only the *vanga* (ſpade): for five years his crops were good, but afterwards declined greatly, till he could not get even clover. They ſow wheat in October, and the clover-ſeed over it in March, if there is rain; the end of June the wheat is cut; the end of Auguſt the clover is mown for hay; and another ſmall crop again in October: here is, therefore, within a year, one crop of wheat and two of clover. The graſs is cut again in May, or beginning of the following June; a ſecond time in Auguſt; and a third growth ploughed in for wheat, which is uſually a very great crop in this huſbandry.

Padua.

On all ſorts of land, the moſt uſual huſbandry is,—1, dung for maiz; 2, wheat; 3, wheat, and then cinquantino or millet, &c. Clover is ſown both in autumn and in ſpring; if the froſt is not very ſevere, autumn is beſt, but ſpring the moſt ſecure. It is cut once after the wheat is reaped.

* *Le Venti Giornate dell' Agricoltura. Breſcia*, 1775. 4to. P. 59.

Venice.

Venice.

Sig. Arduino aſſures me, there is no fallow to be found in any part of the Venetian territory; they have not even a word to expreſs the idea—*l'anno di ripoſo*, is a different thing, and always means clover, or a ſtate of reſt, without any tillage. That gentleman's expreſſion pleaſed me much,—*La jachere è una ſciocca pratica in agricoltura.* The two great points on which the beſt agriculture of the Venetian State turns, are maiz on clover, and wheat on beans. All theſe plants are equally neceſſary upon a farm; and there is a peculiarity in clover, as a preparation for maiz, and equally in beans, as preparatory for wheat.

Bologna.

In a very rich field near this city, which I viewed, the courſe has been, in 1787, wheat, which produced 100 corbi, or twenty times the ſeed. In 1788, hemp 5000 lb. In 1789, it is now wheat, and perfectly clean. This courſe, of—1, hemp; 2, wheat, is, perhaps the moſt profitable in the world,—and brings to mind the noble vale of the Garonne, under the ſame management. If land will do for hemp, they never fallow, but have ſome fields in the courſe, —1, fallow; 2, wheat, which ought to be conſidered as a diſgrace to Lombardy. 1, Maiz; 2, wheat, is a courſe not uncommon. On the fallowed lands they ſow beans, provided they have dung. Very little clover, preferring fenugreek, which is ſucceeded by wheat. Vetches they ſow in autumn, and beans alſo, both for a crop, and alſo to plough in, in the ſpring, as a manure for hemp. With equal quantities of manure, beans give better wheat than hemp. Beans, on Sig. Bignami's farm, are now (November) ſix inches high on the tops of narrow ridges, but none in the furrows; theſe are for a crop, and infinitely too thick, I ſhould apprehend. Lupines alſo, for ploughing in.

TUSCANY.

In the Valdarno di Sura, Colini, Sieniſi, Piſani, Volterrana, they fallow, and their courſe is,—1, fallow; 2, wheat. After travelling ſo long in Lombardy without a fallow, it hurt me to find them common here. Clover is uſually made a preparation for maiz in moſt parts of this country; and beans, where ſown, are reckoned the beſt for wheat. At Martelli, &c. the courſe is, —1, beans, French beans, or maiz; 2, wheat; 3, wheat; 4, wheat and rye, and no after-crop. In the Valdichiana, the following courſe, I am informed, is purſued,—1, maiz and French beans; 2, wheat, and nothing after it; 3, wheat and then raves,—and, in ſome places, clover added. At Villamagna, the courſe is,—1, *biade*, vetches, beans &c.; 2, wheat; 3, wheat; 4, wheat.

The

The firſt wheat produces nine or ten times the ſeed, if after beans; the ſecond ſix or ſeven; the third three or four: —a degradation that ought to explain fully the abſurdity of ſuch a ſyſtem. In ſome diſtricts the following is the courſe, —firſt year, biadi, viz. beans, peaſe, chick-peaſe, French beans, tares, lentils, oats, maiz, the great millet, ſmall millet, panic in part, clover and oats, and, after cutting for forage, plough for ſome of the above. Second year, upon the land thus prepared, wheat is ſown, called *groſſo* and *ariſtata* mucked; or with half *groſſo* and half *gentili* (white wheat). Third year, gentili wheat.

MODENA.

The bad farmers in the Modeneſe are fallowiſts, and their courſe is,—1, fallow, ploughed firſt in May or June, in Auguſt the ſecond time, and the third in October, for ſowing, 2, wheat. But the better farms ſubſtitute beans, French beans, vetches, ſpelt, maiz, particularly the laſt inſtead of a fallow. Upon ſoils that are very good, and manured, they have an execrable cuſtom of taking three crops of wheat in ſucceſſion; ſometimes throwing in clover with the wheat, which is ploughed up in June for wheat again. When beans are ſown in autumn, and ſtand the froſt, they yield much more than ſpring ſown.

The huſbandry practiſed by Sig. Bertolini, which is the beſt of the country, is,—1, beans, ſown in October, and harveſted in May: then French beans, or formentoni, for forage, or thick-peaſe, or lentils; 2, wheat, the ſtubble ploughed thrice for, 3, wheat; 4, maiz, ſown in March. To Reggio they fallow ſome of their land every third year; but more commonly ſubſtitute maiz, beans, or ſomething elſe in lieu.

PARMA.

In the country about Vicomero, the common courſe is,—1, beans; 2, wheat; 3, maiz; 4, wheat.

PIEDMONT.—*Tortoneſe.*

A common courſe here, is,—1, beans; 2, wheat. Alſo,—1, melga, (great millet); 2, wheat. But they have ſome lands in fallow courſes.

SAVOY.

At Laneſbourgh, the common huſbandry is that of a crop and a fallow: they plough in May or June, and again for the ſeed in Auguſt, when they ſow the rye; and they have no wheat.

From theſe notes it appears, that there is ſomething both to commend and to condemn in theſe Italian courſes. The rejection of fallows is pretty general; this is a good feature, and the great ſtreſs they lay on beans, as a preparation for wheat,

wheat, cannot be praiſed too much. On the other hand, there ſeems to be no idea of ſo proportioning the crops of a farm, as to make cattle and ſheep (kept on arable land) the preparation for corn: the culture of clover is not unknown, but ſcarcely extends further than to produce ſome hay. I no where met with artificial graſſes introduced on ſo large a ſcale as to ſupport a good flock of ſheep. In ſome diſtricts, the great plenty of watered meadow explains this deficiency; but there are more where it will not afford an apology. This objection, however, does not hold good in the Lodizan, where their immenſe dairies are ſupported on arable land, and certainly form one of the moſt curious ſyſtems of huſbandry that are to be met with in Europe.

SECT. II.——OF SEED AND PRODUCT.

That reader who thinks ſlightly of the uſe of collecting a great maſs of facts in theſe inquiries, has not, it is to be preſumed, reflected ſufficiently on the great importance, in every ſcience, of combining circumſtances apparently unconnected, in order for mutual illuſtration. He who collects ſuch facts, inſulated for a time only, may not live to ſee the effect of ſuch compariſons; but the gradation of knowledge is preſerved without interruption, and the uſes will undoubtedly be diſcovered.

Savigliano.

They reckon here, that a farm of 100 giornati, one-third watered meadow, ſhould yield 2300 liv. clear of taxes, landlord's half.

PIEDMONT.—*Turin.*

Products of Sig. Briolo's farm:—Wood, eight giornata; meadow, four; wheat, five; rye, five; maiz, five. Yields to the proprietor, for his half,

Ninety mines of wheat, at 3 liv. 10*ſ.* - -	315 liv.
One hundred and five ditto of rye, at 2 liv. 15*ſ.* -	236
One hundred and forty ditto of maiz, at 2 liv. -	280
Wood cut, at ſeven years growth, - -	71
Vines planted about the farm, 45 brenta of wine, at 5½ liv.	247
For landlord's half, - - -	1149

Total, 2298 liv.
Wood, 71

2221 liv. product of nineteen giornata of arable and meadow, or 116 liv. per giornata (about 6l. per Engliſh acre); which is a very large produce. There are

are] alſo mulberries enough to pay taxes; this land coſt 750 liv. the giornata, and the wood 250 liv.

MILANESE—*Milan to Pavia.*

The crops are—Wheat, ſeven or eight ſeeds.—Rye, eleven ſeeds.—Maiz, forty ſeeds.—Ditto quarantino, twenty ſeeds.—Millet, fifty ſeeds.

WHEAT.

PIEDMONT—*Chentale.*

A proverb in this country is, that a good peaſant ſhould finiſh his wheat ſowing by the 19th of October. After hemp, clover, or fallow, wheat yields forty to forty-five mina per giornata, each mina 45 lb. to 52 lb. average 47 lb. and the common price 3 liv. to 3 liv. 10*ſ.* but at preſent 3 liv. 15*ſ.* But, including good and bad farmers, and all ſoils, the produce is not more than twenty-four mina; that is, twelve for the landlord and twelve for the tenant. They ſow four to four and a half; the common produce is, therefore, ſix times the ſeed, which is miſerable; the better crops between ten and eleven ſeeds. Allowing for the Piedmont pound, being about one-tenth heavier than the Engliſh (though only of 12 oz.), and that the giornata is not equal to an acre, their beſt crops, at forty-two or forty-three mina, will be near five quarters per Engliſh acre; and their average near three; which are not greater than might be expected. Their quantity of ſeed appears, however, to be immenſe, for it amounts to 199 lb. per giornata, which is extravagant: and makes it ſuſpicious, that the giornata here is larger that the legal giornata of the principality.

Savigliano.

They ſow here, of wheat, 3½ eymena, and reap eight times as much, in a good crop.

Turin.

They ſow five mina, or nine rabbii, and 10 lb. to the giornata; of rye and oats, the ſame quantity; of hemp, three mina; maiz, one-half; millet, one-half. Wheat produces twenty-five mina; or five times the ſeed; rye, thirty; maiz, fifty to ſeventy; millet, twenty. The mina at 45 lb. the crop of wheat is about 5½ coombs per Engliſh acre. For their land and climate, a miſerable crop; but as good, or better, than they deſerve, when their courſe of crops is conſidered.

MILANESE—*Mozzata.*

Produce of wheat, eight ſtajo per pertica on the beſt land; five on middling; and three on the worſt.

There is a ſingular neglect in keeping wheat in this country: being ſhewed the granaries at two houſes, in which the quantity was conſiderable, I was ſurprized to find, that where ſome of the windows were open, the room ſtunk very much; the ſcent particular; and examining the wheat, I found the ſurface all either covered, even to ſhining, with the webs of the wevils, or elſe in ropes, hanging together by it, and the flies buſy; the wheat was two or three feet thick, and had not been ſtirred. In a third granary, to which I went for ſatisfying my curioſity, in the hands of the owner (for the other two belonged to noblemen, and were managed by intendants,) I found in the ſame condition; and all agreed, that to ſtir the wheat is bad, as it makes the whole heap alike: whereas, by not moving it, the ſurface only ſuffers. On this, I thruſt my arm into the heap, to examine the interior, which all ſtunk dreadfully. Perhaps, neither the wevil, nor any other inſect, may live deep in the heap; but, for want of airing, the wheat ſtinks; not to mention the ſurface, which is a loſs of 5 or 6 per cent. A moſt barbarous ſyſtem of management. It is worth remarking, that the only good way of keeping wheat is in the ſtraw: ſtacks ſhould be built on capt ſtones, to keep vermin out, and the corn threſhed as wanted.

Mozzata.

The product here, on the three diviſions of ſoil, are, per pertica, the meaſure the ſtajo,—

	Good.		Middling.		Bad.
Wheat -	8	—	5	—	3
Rye - -	8	—	5	—	4
Millet -	8	—	5	—	3
Common maiz,	10	—	6	—	4
Ditto, Quarantino,	6	—	4	—	2
Lupines, -	8	—	6	—	4
Panic, -	6	—	4	—	2
Clover hay, 350 lb. of 28 oz. per pertica, at 3 mowings; 1¼ ton per acre. In money by corn, without mulberries or vines, 24 liv.—	15½	—		—	9¼

For the landlord's ſhare, I ſuppoſe. And, in reſpect to the country in general, if four ſquare miles be taken around Mozzata, of ſix parts, three are good, two middling, and one bad. Average corn produce, 18½ liv. The common notion is,

is, that two-thirds of the groſs produce go towards maintaining the farmer, ſupporting the cattle, wear and tear, taxes, &c. and that one third is nett to the proprietor.

		liv.
Produce of 100 pertiche, at 18½ liv.		1850
Vines, proprietor,	150	
—— tenant,	150	
		300
Mulberries, 2000 lb. leaves, at 4 liv, per hundred,		80
		2230
Deduct one-tenth of corn product, damaged by vines,		185
		2045
Deduct one-eighth of corn, for damage by hail; the produce of vines is nett, this is allowed for,		209
Total nett produce,		1836

Hence, therefore, it does not quite reach 18½ liv. on the average

Proprietor—one-third of corn,		555
——— vines,	150	
——— mulberries,	80	
		785

Or, per pertica, 7¾ liv. (31s. per Engliſh acre, *)
Such land would ſell for 145 liv. per pertica (28l. 16s. per Engliſh acre).

Codogno.

The ſeed and produce of the crops here, are,—wheat, ſow one ſtara and reap ſix times as much; maiz, ſow one fourth of a ſtara, and get twenty for one; millet, ſow one eighth ſtara, and reap ſix ſtara; rye, ſow one-half ſtara, the produce eight ſtara; rice ſow one ſtajo, gain ſixteen rough, or eight white.

A Bergamaſque writer obſerves, that wheat cultivated with the plough, commonly yields four, five, and ſix times the ſeed; but, cultivated with the ſpade, twelve, fourteen, and ſixteen times that quantity †, and this of greater weight; a ſure proof of their miſerable tillage.

* At 6 1-6th pertica per acre Engliſh, corrected from ſome of the proceeding proportions, from intelligence very lately received.

† *Cantuni, Inſtruzioni Pratiche intorno al Agricoltura.* 8vo. 1788, Bergamo. P. 16.

Breſcia.

Arable products in this vicinity, are,—wheat, three ſacchi, of fourteen pezè each pezè 25 lb. being about ſix ſeeds. The pezè, of 25 lb. Breſcian, being equal to 14¼ French, makes 206 lb. French per ſack, or 224 lb. Engliſh: the three ſacks, therefore, are 672 lb. Engliſh, on a jugero of four pertiche; this is ſcarcely twelve buſhels the Engliſh acre, reckoning four one-fourth pertiche in that acre *. Maiz, ſown in March, produces ſix, eight, ten ſacchi, each twelve pezè of 25 lb. This is about twenty-eight buſhels to the Engliſh acre, ſuppoſing a buſhel of maiz to be 50 lb.; but quarantino does not yield more than five ſuch ſacks. Melico (the great millet), fifteen ſacchi, of ten or eleven ſuch pezè. Flax, ſix to nine pezè, at 20 liv. to 25 liv. the pezè; this is about 125 lb. the Engliſh acre, and 170 liv. at 6d. Engliſh, 4l. 5s. and per Engliſh acre 4l. Millet gives three ſacchi, of eleven pezè. Clover, three hundred pezè of hay, at three cuts; meadows yield the ſameas clover, but are paſtured in autumn. Price of hay 70 liv. the *carro*, of one hundred pezè. Three hundred pezè equal 4827 lb. Engliſh, and per Engliſh acre, 4522 lb. which we may call groſsly two tons; a very poor crop for three mowings.

To Verona.

In this line of country, the Lombardy ſyſtem, of planting all the arable lands with rows of pollards, for training vines, is at its height. There is a good deal of it from Bergamo to Breſcia; and ſome are ſeen in paſſing from Vaprio to Bergamo, but not ſo univerſally as here. It is a moſt ſingular ſyſtem; rows of maple, aſh, or poplar, are planted, from four to ſeven yards aſunder, and rows of vines at their feet, which are trained up thoſe trees, and in feſtoons from tree to tree; the ſpace is cultivated for corn. They do not ſeem to approve of a ſingle ſtem for theſe pollards ſo much as ſeveral, for they have three or four, about ſix feet high; cropped every ſecond year, to prevent too great a ſhade. In ſome places, mulberries are mixed with theſe common foreſt trees: one mulberry, and then two aſh or maple. In ſome rows, beyond all doubt, the vines

* In the new edition of Agoſtino Gallo, the editors give a line for the length of a Breſcian inch (*oncia*) ▬▬▬▬▬▬▬▬ which is the length of 1 5-8th inch Engliſh. Twelve of thoſe oncia make one braccio, and ſix braccia make one cavezzo; conſequently there are 9¼ feet in a cavezzo. A pertica is an oblong ſquare, twenty cavezzi long and five wide; now multiply 9¼ by 20 = 195; and multiply 9¼ by 5, = 48¼; and the one product by the other, = 9506¼ ſquare feet for a pertica; and 4½ pertiche equals an Engliſh acre; perhaps the editors of that new edition have made an error, in ſtating 30,709 French feet in their jugero of 4 pertiche.

are

are trained equally on the mulberries as on the other trees; but not generally, being faſtened only to the ſtems of the mulberries. The better the land, the farther aſunder are theſe rows, even to ſixty or ſeventy feet; but, in worſe land, much nearer. All the way, the ſoil is a ſtoney gravel, of a different appearance in quality, but where holes are dug for trees, it looks better.

Verona.

Wheat here yields five or ſix times the ſeed. They ſow one hundred Veroneſe pounds upon a campo of land, and reap five hundred and fifty, which is about two buſhels of ſeed per Engliſh acre, and the produce eleven buſhels. We have not, upon the pooreſt lands in England, ſo wretched a crop: to what are we to attribute it, if not to general bad management, united with the execrable ſyſtem of incumbering their fields with pollards and vines. They ſteep their wheat ſeed in lime-water twelve hours, to prevent the ſmut.

Vicenza.

The thirty-two miles from Verona hither, are all, except a ſmall quantity of irrigated land, lined into the ſame rows, as already deſcribed, from twenty-five to thirty yards aſunder. Wheat is ſown cloſe under them; but with maiz, ſix yards are left on each ſide not cropped; and, in ſome pieces, thoſe twelve yards are ſown thick for forage, as not equally wanting ſun; a ſure proof that they admit the damage of the trees, and provide againſt it as well as they can. In ſome grounds preparing for wheat, manure is ſpread as far as the roots of the trees extend, but no further. What a ſyſtem, to give dung to elms and maples, and to force wheat to grow under their ſhade!

Wheat has now (October 23) been ſown a month or ſix weeks; it is high, and thick enough to hide a hare. The borders of theſe ſown lands are dug clean away, as deeply as in Eſſex.

Maiz produces about nine one-half facchi the campo. Inquiring here into the eſtimated damage reſulting to corn from the plantations of trees in arable land, I was told, that the loſs in one-tenth of wheat, and one-half of maiz, but to clover none. The trees here are all walnuts, for training vines to, the damage done by them, agreed to be very conſiderable. Of wheat they ſow three ſtari, and the produce eighteen to twenty; of maiz one, and the crop thirty to thirty-five; of cinquantino, half a ſtara, preduce ſixteen; of buckwheat one-fourth, the return ſix. In the farms around the celebrated Rotunda, maiz produces five ſacks, each of 150 lb.: a ſack is four ſtari, and the ſtara about three pecks; this is fifteen buſhels, and not ſixteen, the acre. They are ſometimes troubled with the ſmut; Sig. de Boning, Preſident of the Academy of

of Agriculture, has tried liming and lime water, as a prevention, but without any ſucceſs. Of maiz they have a new ſort, that carries a male flower on the top of the cone, and this ſort always fills with grain to the very point, which is not the caſe with other kinds.

In reſpect to the exhauſting quality of crops, they reckon that the maiz which carries the flower at top takes moſt from the land: 2, millet: 3, common maiz: 4, wheat. It ſeems remarkable, that they ſhould conſider the crops which are preparatory to wheat as exhauſting, more than the wheat itſelf.

Padua.

Of wheat they ſow three ſtaji in middling land, two in fertile ſoils, and four in bad ones, per campo: as the ſtajo is equal to forty-one French pounds, and the campo about one-tenth leſs than an Engliſh acre, it makes three ſtaji equal to two and a half buſhels per acre, which is pretty exactly the quantity we uſe in England. The crop is two mozzi on the beſt land, and one and a half on a medium: each mozzo twelve ſtaji: this is about fifteen and a half buſhels the acre or under ſeven times the ſeed. Thus theſe wretched products purſue me through all Lombardy. Of maiz they ſow three quarti, or three-fourths of a ſtajo, but if planted, two: the produce, good five mozzi, middling three, bad one. Of lucern (the quantity very inconſiderable) and of clover they ſow 12 lb. *groſſo*. This pound is to the French one as 9150 is to 9216; this is between 14 lb. and 15 lb. per acre. Clover gives three carri, each 1000 lb. at three cuts. Lucern four carri, at four or five cuts. Almoſt the whole country is lined into rows of pollards, as already deſcribed; yet they admit that every ſort of tree does very great damage to all arable crops; but to graſs the miſchief is not great.

To Venice.

The ſame level at this city that reigns about Padua, equally encloſed and planted; much of it arable, and almoſt the whole cut into little ſcraps of fields, with many gardens. Near the Adriatic, a dead level marſh, covered with marſh graſſes.

Ecclesiastical State.—*Bologna.*

In a famous field near the city, remarkable for yielding great crops of hemp, wheat yields one hundred corbes for five of ſeed. In general, they ſow two and a half tornature of land, or one acre and a quarter, with a corba of ſeed, or 150 lb. to 160 lb. (ſomething under the Engliſh pound); and in all the Bologneſe, on an average, the produce is about five ſeeds, ſome only three; but on

on the beſt hemp lands twelve to ſixteen, on a medium; but twenty for one are ſometimes known.

TUSCANY.—*Florence.*

In the plains, the general produce is eight times the ſeed; the whole dutchy through, not more than five or ſix: in the depoſits of rivers, or ſpots remarkably rich, twelve, fifteen, and even twenty. All theſe are wheat. Beans four and a half and five. On one ſtioro of land they ſow three-fourths of a ſtajo of wheat, which weighs 52lb. to 55lb. of 12oz. (this pound is equal to three quarters of a pound Engliſh.) On the hills they ſow one-fourth more. Suppoſing the ſtiora * to be, according to De la Lande, 7056 French feet, about 5¼ make an Engliſh acre; three-fourths of a ſtajo therefore per ſtiora, equals 165 lb. per acre, or very near three buſhels.

* There are three accounts before me of the contents of a Tuſcan ſtiora. Monſ. De la Lande, tom. ii. p. 314. ſays, "le ſtiora = 196 toiſes quarrés en ſuperficie;" theſe are French toiſes, each ſix feet: this makes about 5¼ ſtiori to an Engliſh acre; that is to ſay, 7056 French ſquare feet, of which 38,300 are an acre. In *La Squadra mobile l'Arithmetica e l'Agricoltura, del S. Sangiovanni*, 4to, Vicenza, 1759, p. 11. and 132. is the meaſure of the ſoldo of Florence, which equals 1 1-eighth inch Engliſh; the braccio is 20 ſoldi, or 22½ inches Engliſh, (by another account 23½; 6 braccia make a canna: and 8 canne long, by 6 broad, make a ſtiora. Hence there are 6075 Engliſh feet in the ſtiora; conſequently there are ſomething above 7 ſtiori in an acre. Monſ. Paucton, in his *Metrologie*, p. 794, compares it to the arpent of France of 48,400 French feet, and makes it to that arpent as 0.11461 to 1.0000; by this account it will be about 27,800 French feet, of which feet 38,300 are an acre, or above 1 1-third ſtiora. In the *Giornale Fiorentino di Agricoltura*, 1786, p. 253. "L'acre al noſtro ſtioro ſtà come 18,992 a 10,592;" by this ratio, an acre is about 1¼ ſtiora. All theſe accounts differ therefore greatly. To compare other circumſtances---At Martelli, they ſow one-third of a ſtajo of wheat ſeed on a ſtiora; and at Villamagna, they ſow 3¼ ſtiori with 1 ſtajo, which quantities nearly agree. By De la Lande's account, this will be per acre Engliſh 73 lb. which appears to be a ſmaller quantity than any where uſed. By Sangiovanni, it will be about 94 lb. ſtill under the common quantities. By Paucton, it will be about 17 lb.; a portion not to be named as the ſeed of an acre. And by the Florentine author, about 23 lb. which is almoſt equally abſurd. Seed wheat will agree with none of the meaſures; ſuppoſe they ſow 2½ buſhels per acre, then there are 15 ſtiori in an acre. If 2 buſhels, then there are 12 ſtiori. Aſt is confuſion.

At Villamagna, they ſow 24 ſtaji of beans on 28 ſtiori of land; this is about 3 buſhels Engliſh per 5¼ ſtiori, which agees very well with an acre being 5¼: they ſow alſo 6 ſtaji of oats on 10 ſtiori, this would be 2 buſhels on 5: they ſow oats therefore rather thinner, proportionably to the Engliſh practice, than beans.

Upon my getting a friend to write to Tuſcany for information, I received ſuch as proved of no uſe; ſimply this table,---1 *quadrato*, 10 *tavole*; 1 *tavola*, 10 *pertiche*; 1 *pertica*, 10 *deche*; 1 *deca*, 10 *braccia ſquadra*. This makes the *quadrato* under 40,000 feet Engliſh. But what is the *ſtiora*? Such are the endleſs difficulties in every thing concerning meaſures.

Where authorities, apparently good, differ ſo greatly, the reader will of courſe receive all eſtimations with many doubts.

But

But I found at Martelli, near Florence, that they ſowed but one-third of a ſtajo per ſtiora, which would not be more than two buſhels per acre. Beans would be much more cultivated, but for the pernicious plant the *cuſcuta*—a paraſite that feeds on and deſtroys the crop, ſo that even the ſeed again is not reaped; in the old botany called *orobanchis ramoſa*, and in Tuſcany *ſucca mala*, and *ſiamini*. Of ſaggini they ſow 1½ ſtajo of ſeed, and the produce fifty to ſixty. Of formentone (maiz) they ſow half a ſtajo, and reap twenty-five.

On the plains in Tuſcany, the chief product is wheat, the ſecond wine, and the third oil; but on the ſouthern ſide of the hills, olives on ſpots bad for them, and wine. Silk no where enough to be a chief object.

MODENA.

The country from Modena to Reggio conſtantly improves in its features, and muſt be reckoned among the beſt cultivated in Lombardy; the fields are thrown into arched lands, like Flanders, about twenty-five yards broad, and ſmall ridges on thoſe: a row of trees is planted on the crowns of ſome, and along the furrows of others: in ſome there are neat graſs trenches; and as the fences are equally well made, and the meadows with a good aſpect, the country carries the general features of being well cultivated. The appearance of theſe broad ridges, in two of the beſt cultivated countries in Europe, Lombardy and Flanders, juſtly gives a high idea of the practice.

PARMA.

From Reggio to Parma, there are many lands, three or four yards broad, now (November) deeply ploughed, and the furrows cleaned out by ſpades, laid up in this manner, for planting beans in the ſpring; excellent management. There are alſo a good many autumn ſown ones, three or four inches high: produce in general, about Vicomero, wheat four or five times the ſeed, and beans five or ſix. To Firenzuola this practice takes place yet more, and is better done. The merit of their huſbandry appears to be greater about Parma than at Piacenza; there is a viſible decline as you advance.

SAVOY.

At Laneſbourg, they ſow only rye, which they harveſt in July, the produce about ſix for one.

If the intelligence concerning the produce of wheat be reviewed, it will be found, on an average, varying from five to ſeven and an half times the ſeed; generally between five and ſix. Suppoſe the latter number, and we ſhall, with reaſon

reaſon, be amazed at the miſerable products of this rich plain, in every thing except graſs and ſilk. The average ſoil of England cannot be compared with the average ſoil of Lombardy, yet our mean produce is eleven times the ſeed, perhaps twelve. Every one muſt be curious to know the cauſe of ſuch wretched crops: I attribute them to various circumſtances—but the predominant cauſe muſt be ſought for in the ſmall farms occupied either by little peaſant proprietors, or, what is more general, by metayers. This abominable ſyſtem of letting land is the origin of moſt of the evils found in agriculture, wherever the method prevails. Such poor farmers, who, in every part of Italy where I have been, are ſo miſerable, that they are forced to borrow of the landlord even the bread they eat before the harveſt comes round, are utterly unable to perform any operation of their culture with the vigour of a ſubſtantial tenantry; this evil pervades every thing in a farm; it diffuſes itſelf, imperceptibly to a common eye, into circumſtances where none would ſeek it. There are but few diſtricts where lands are let *to the occupying tenant* at a money rent; but wherever it is found, *there* crops are greater; a clear proof of the imbecillity of the metaying ſyſtem. Yet there are politicians, if they deſerve the name, every where to be found, who are violent againſt changing theſe metayers for farmers; an apparent depopulation is ſaid to take place; and the ſame ſtupid arguments are heard, that we have been peſtered with in England, againſt the union of farms. Men reaſon againſt that improvement of their lands, which is the natural progreſs of wealth and proſperity; and are ſo groſsly abſurd as to think, that doubling the produce of a country will deprive it of its people.

SECT. III.—OF THE CULTURE OF CERTAIN PLANTS.

Gallega Officinalis.

Commonly ſpontaneous in the fields, between Milan and Pavia, and wherever cattle have admiſſion all cloſely eaten.

Paliurus.

I know no plant that makes a better hedge than this in the north of Lombardy. Sig. Pilati, near Breſcia, has one of ſix years growth, as good as an excellent white thorn one in England would be in ten.

Trigonella Fœnum Græcum.

Cultivated in the Bologneſe in preference to clover; ſoil with it; and ſow wheat on the land.

Sainfoin.

In Tuſcany, the *coline di Piſani* are much under this plant, which is called *lupinello*; particularly about Caſtel Fiorentino, where it was introduced about twenty years ago, by Sig. Neri; one of the good deeds which deſerve a nation's thanks, better than a victory, or the taking of half a dozen towns. A thouſand ſacks of the ſeed were ſent thence to Naples and Sicily. Will thoſe kingdoms awaken at laſt? Sig. Paoletti, at Villamagna, has a piece of good ſainfoin on a ſteep ſlope; but I found one-third of it burnet.

Larch.

In the Milaneſe, at Mozzata, the Count de Caſtiglioni having 200 pertiche of waſte heath, and a community 200 more adjoining, he took a leaſe of it for ever; and ploughing the whole, ſowed acorns, planting alder, larch, and other trees, which do well; but the ſown oak, in eight years, exceeded every thing, and are beautiful trees: the ſoil a poor gravel. We have in England ſo many prejudices, that a man who does not travel is apt to think that every thing Engliſh is better than the ſame things in other countries; and, among other follies, that for oak England is ſuperior to all the world: but timber wants ſun as much as wheat; and I have no where in England ſeen ſuch a growth of timber, as in many places abroad. Larch abounds greatly in the mountains, and is reckoned an admirable wood for water-works; all poſts are of larch. I have read in ſome writer, that there is a law, in many parts of Lombardy, which allows a land-proprietor, whoſe eſtate is entailed, to plant, on the birth of a daughter, a certain number of Lombardy poplars, which are her portion on coming of age, or being married, in ſpite of any entail. I enquired, both in Piedmont and here, into the truth of this, and was aſſured there is no ſuch law; nor did they ever hear of the cuſtom, even when eſtates have not been entailed.

In the arſenal of Venice, is ſome quantity of larch, kept under cover; and valued greatly for all works expoſed to water. They are not very large, but coſt twenty-two ducats each. The maſts are very fine pine-trees, from the upper Treviſano; I meaſured one thirty-eight yards long, and two feet diameter at the butt, and one foot at the other end.

Lucerne.

I mention this plant, for an opportunity of obſerving, how very rarely it is cultivated in Italy: I ſaw a little near Padua; and there is an inconſiderable quantity in the Parmeſan, where it is cut five or ſix times; they find, that cows give more milk on it, than on any other graſs.

Raves.

Raves.

I was ſomewhat ſurprized, to find turnips, or rather the French raves (for I fear they are not the genuine turnip), cultivated in Tuſcany. I was aſſured, that in the Valdichiana there are many, ſown immediately after wheat, but never hoed, yet come generally from 2lb. to 5lb.; ſome to 30lb. (20lb. Engliſh), and that they are applied to the feeding and fattening of oxen, which ſell at 140 *ſcudi* the pair (39l. 13s. 4d. Engliſh); nothing beſide is given, except a little hay.

Cyprus Tree.

At Soma, near the Lago Maggiore, there is a very famous cyprus tree, which Corio, in his *Storia di Milano*, ſays, was the place where the people aſſembled in congreſs in the thirteenth century; it was then the moſt celebrated tree for ſize and age in the whole Milaneſe; and muſt therefore be immenſely old at preſent. It is now in good health, except a few branches that have ſuffered a little towards the top; it is nine *braccia* in circumference.

CULTURE OF SILK.

Nice.

Eight *roups* of cocoons, or 84 lb. make 24 lb. of ſilk (11½ oz.), which ſells at 10 liv. 5*ſ.* the lb.; a *roup* of leaves ſells at 20*ſ.* and 250 *roup* are neceſſary for 8 oz. of grain (eggs).

Coni.

The whole country, after aſcending the Alps, is planted with mulberries, around every field, and if large, in lines acroſs. I remarked great numbers from ten to fifteen years old.

To Chentale, 1 oz. of grain requires 360 *roup* of leaves; each *roup* 25 lb. and yields 4 or 5 *roups* of *bozzoli* or *cacata* (cocoons), and 1 *roup* of cocoons makes 3 lb. of ſilk. The price of organzine 20 liv. to 24 liv. per lb.; the offal pays the ſpinning. Gathering the leaves coſts 2*ſ.* to 3*ſ.* the *roup*.

Chentale.

The ſeed of the mulberry is ſown in nurſeries, and the trees commonly planted out at four years old. The firſt, ſecond, and third year, they are pruned, for giving the branches the right form; the fourth, they begin to gather the leaves. Some which were ſhewn me by the Count de Bonaventa, of eighteen years old,

give 6, 7, and to 8 *rubbii* of leaves each. One old tree, a very extraordinary one, has given 53 *roups*. A large tree, of fifty or ſixty years, commonly yields 25 *rubbii*. They never dig around them, nor waſh the ſtems as in Dauphiné; but they have a practice, not of equal merit, which is to twiſt ſtraw-bands around the ſtems, to defend them againſt the ſun. For one ounce of grain 65 to 80 *rubbii* of leaves are neceſſary, which give 2½ *rubbii* of cocoons and ſometimes ſo far as four. One *rubbio* of cocoons yields 20 to 21 oz. of ſilk organzine, of the price of 18 liv. per lb. For gathering the leaves, from 1*ſ.* 8 *den.* to 2*ſ.* the *rubbio* is given. The offal *(moreſca and chocata)* pays the winding and ſpinning. They never hatch the worms by artificial heat; uſing only that of the ſun, or of the human body. The common method of carrying on the buſineſs is, to provide, as in France, grain and mulberries, and to receive half the cocoons. The cultivation is ſo profitable, that there are many lands to which mulberries add a value of 200 liv. or 300 liv. more than they would ſell for if they contained none; and it is farther thought, that they are but little injurious to corn, the ſhade not being ſo prejudicial as that of the walnut, and of ſome other trees. The common eſtimation of profit is, that trees of all ages yield from the time of beginning to bear, from 30*ſ.* to 4 liv. each nett to the landlord for his half produce.

Turin.

One ounce of grain gives 2 to 4 *rubbii* of cocoons, and demands 120 *rubbii* of leaves; 1 *rubbio* of cocoons will give 22 oz. of commonly well ſpun ſilk. The price of grain 12 liv. the oz. when very ſcarce, but in common 30*ſ.*; that of leaves 7 or 8*ſ.* per *rubbio*. Cocoons 21 liv. per *rubbio*. When I aſked the price of the ſilk, the anſwer was, Oh! for that! it is the price the Engliſh chooſe to pay for it. The common price of organzine, 16 to 20 liv. firſt quality; raw, 12 liv. For gathering the leaves, 2*ſ.* per *rubbio* is given. Of the different ſorts of mulberry, the wild is the beſt, in point of quality of ſilk. A tree of twenty years, will give 24 or 25 *rubbii* of leaves; ſome to 35 *rubbii*. The trees are grafted in the nurſery, and planted out at four years, at the beginning of April; price, 20*ſ.* to chooſe out of many; and in four years after, begin to gather. When planted in watered meadows, the gathering damages the hay almoſt to the value of the leaves, yet many are ſo planted; and many peaſants think they loſe in corn by the ſhade of the trees, as much as they get by them. From the 22d to the 26th of April, is the ſeaſon for hatching; never by fire; nor have they any method of retarding the hatching, in caſe of a want of leaves. Endive, lettuce, and elm leaves, have been often tried as a ſuccedaneum, but always killed the worms; ſuch things muſt never be depended on. The peaſants generally ſell the cocoons, not one in a hundred ſpinning. A chamber of twenty feet by twelve

twelve feet is neceſſary for 3 oz. of grain; and ſix tables, one *trebucco* long and two-thirds wide.

Novara.

Paſſed this place towards Milan, which is a great tract of mulberries for ſeveral miles.

MILANESE.—*Buffalora to Manienta.*

Many mulberry hedges, but they are bad and ragged; ſome new planted in the quincunx poſition. For ſeveral miles, the country is all planted in rows of vines, at twelve, ſixteen, and twenty feet, and fruit trees among them, for their ſupport; among which, are many mulberries, and the vines running up them. This muſt be a moſt profitable huſbandry indeed, to have ſilk and wine not only from the ſame ground, but in a manner from the ſame tree. Between the rows, the ground is cultivated; millet, maiz (cut), *holcus ſorgum*, the great millet, lupines, with dung amongſt them, to be ploughed in for wheat, with young maiz, ſown thick, as if for fodder.

Citricho.

A beautiful mulberry hedge, and in good order; ſix to eight inches from plant to plant, and cropt at ſixteen or eighteen from the ground. It is clear therefore, that the plant will do, with care, for a good hedge. Towards Milan, mulberries decline, oak and other pollards being found in their ſtead.

Mozzata.

The culture of mulberries and making ſilk, being here much attended to, were principal objects in my inquiries. The fruit is well waſhed, the end of June, to make the ſeed ſink; it is then ſown in rows, in a bed of earth well manured, and finely laboured, in the rich nurſeries near Milan; covered very lightly, and the ſurface lightly flattened; ſtraw is ſpread to defend it from the ſun, and much water given. When the young plants appear, they are weeded by hand. The ſecond year, they grow to two or three feet high, and hoed and thinned. The third year, they are cut to the ground above the buds that are to puſh, and tranſplanted from thoſe nurſeries, in the vicinity of the city, to others that are ſcattered all over the country, in ground well dug and manured, and at two feet ſquare; here they are kept clean by hoeing. The fifth year, in the ſpring, they are cut again to the ground; they then ſhoot very powerfully, and attention muſt be given, to keep but one good ſhoot, and the ground is dug or hoed deeper than common, and alſo dunged. The ſixth year, thoſe that are high enough, are grafted; and the reſt, the year following. Thoſe that took the

the ſixth year, ought to reſt in the nurſery three years, including the year of grafting, that is, the ſeventh and eighth year. They do not like to plant large trees, and have a proverb,

Se vuoi far torto al tuo vicino,
Pianta il moro groſſo e il fico piccolino.

As to plant ſmall fig trees is as bad as large mulberries.

The holes are made in winter for receiving them where they are to remain; theſe are nine feet ſquare and two feet deep, and have at the bottom a bed of broom, bark of trees, or other rubbiſh; then the beſt earth that can be had, and on that dung, one load of ſixteen feet to four trees; this is covered with more good earth, and this levels the hole with the reſt of the field; then prune the roots and plant, ſetting a pole by the young tree to the north, and a ſpur poſt on the other ſide, to guard it from the plough. Twine no ſtraw the firſt year, becauſe of the inſect *forficula auricularia*, L.; but in November bind ſtraw around them againſt the cold, or, as ſtraw is dear, the *poa rubra*, which abounds. Never, or very rarely, water. Much attention to remove all buds not tending in the right direction.

The fourth ſpring after planting, their heads are pollarded, in March, leaving the ſhoots nine inches long of new wood, and ſeeking to give them the hollow form of a cup, and that the new buds may afterwards divide into two or three branches, but not more. The next year, they begin to pluck the leaves. They are attentive in pruning, which is done every ſecond year, to preſerve as much as they can the cup form, as the leaves are gathered more eaſily. Thus it is about fourteen years from the ſeed before the return begins.

After gathering the leaves, a man examines and cuts away all wounded ſhoots; and if hail damage them, they are cut, let it be at what time of the year it may. Old trees are pruned after gathering, but young ones in March. In autumn, the leaves are never taken for cattle before the 11th of November, as the trees after that time do not ſuffer. The third year after planting young trees, they ſow about a hat full of lupines around the ſtem, and when about ten inches high, dig them in for manure. The opinion here is, that the mulberry does very little harm to rye or wheat, except that when cut the falling of branches and trampling are ſomewhat injurious. Maiz, millet, and panic are much more hurt. A tree, five years after tranſplanting, gives 10 lb. of leaves, each 28 oz. At ten years, 18 lb. At fifteen years, 25 lb. At twenty years, 30 lb. At thirty years, 50 lb. At fifty to ſeventy years, 70 lb. There are trees that give 80 lb. and even 100 lb. The price of leaves is commonly 4 liv. per 100 lb. (28 oz.). For one ounce of grain 500 lb. of leaves are neceſſary, and yield 17 lb. of cocoons; but among the riſings in the mountain of Brianza, 25 lb. To make a pound of ſilk, of 12 oz. 5 lb.

5 lb. or 6 lb. of cocoons, of 28 oz. are required. Price of cocoons, in the low watered country, 2 liv. per lb. (28 oz.). At Mozzata, 2½ liv. At Brianza, 3 liv. The grain is hatched in a chamber, heated by a chimney, and not a ſtove, to 17 deg. of Reaumur (70½ Far.); but before being placed in this chamber, they are kept eight days under a bed, with a coverlet upon them, in boxes covered with paper pierced: and when hatched lay the young leaflets of the mulberries on the paper, to entice them out. The method of conducting the buſineſs here is the ſame as in France, the landlord furniſhes half the grain, and the peaſants half, and they divide the cocoons. Price of grain, 2 liv. the ounce. Mulberries, of all ages, are pollarded every ſecond year; a miſchievous cuſtom, which makes the trees decay, and leſſens their produce; it is never done in Dauphiné, where the culture is ſo well underſtood.

Milan.

Sig. Felice Soave made ſome intereſting trials on ſilk worms.

At Lambrate, near Milan, 2 oz. of ſeed in rooms, kept to the heat of 23 and 24 deg. Reaumur, hatched well, and kept healthy: the 28th of April, the ſeed was placed in the rooms, and hatched in the third, fourth, and fifth day: the 21ſt of May, the firſt cocoon ſeen, and at the end of the month all were at work. The product gathered the 3d of June; the product 92½ lb. cocoons (28 oz.); eighty-four of them having been ſpun from four and five cocoons, gave 20½ lb. (12 oz.) of ſilk, ſtronger and more ſhining than common: the conſumption of leaves, 1420 lb. of 28 oz. Wood uſed for fire, 2800 lb.; but the two rooms would have ſerved for 4 oz. of ſeed. In the common method, without ſtoves, the conſumption of leaves is 500 lb. for an ounce of ſeed, and the medium product is not above 15 lb. of cocoons; and by this new method, the conſumption of leaves has been 710 lb. each ounce, and the produce 46½ lb. cocoons. Sixteen or ſeventeen cocoons weigh an ounce in the common method, but in this only thirteen or fourteen. The ſilk cannot commonly be ſpun from five or ſix cocoons; theſe were ſpun eaſily from four or five, and might have been done from three or four. To gain a pound of ſilk, in common, 5 lb. of cocoons are neceſſary; but here the ſame quantity has been gained from 4 lb.

Lodi to Codogno.

In this dead level and watered diſtrict, there are very few mulberries; none except near the villages; many of them, not all, appear unhealthy; perhaps by reaſon of their not exerting the ſame attention as in Dauphiné, where there is, in irrigated meadows, mounds made to keep the water from theſe trees.

Codogno

Codogno to Crema.

Mulberry trees here have large heads, as in Dauphiné, inſtead of being pollarded inceſſantly, as to the north of Milan.

There is an idea in the Milaneſe, that ſilk was introduced by Ludovico il Moro. Franceſco Muralto reports, " Prædia inculta infinita duobus fluminibus ad novalia (Ludovicus), reduxit infinitas plantas Moronum ad conficiendas ſetas, ſeu ſericas plantari fecerat et illius artis in ducatu, primus fuit auctor *." It is ſaid to have been introduced into Europe by ſome Baſilian monks, from Sirinda, a city of Indoſtan, to Conſtantinople, under the Emperor Juſtinian, in the year 550, by one account †; and by another, in 525 ‡. In 1315, the manufactory of ſilk was brought in Florence to great perfection, by the refugees of Lucca ‖; but during the fifteenth century, no ſilk was made in Tuſcany; for all uſed in that period was foreign, ſilk worms being then unknown §. In 1474, they had eighty-four ſhops that wrought gold and ſilver brocaded ſilks, which were expoſted to Lyons, Geneva, Spain, England, Germany, Turkey, Barbary, Aſia, &c. ** Roger I. King of Sicily, about the year 1146 ††, having conquered ſome Grecian cities, brought the ſilk weavers from thence into Palermo; and the manufacture was ſoon imitated by the people of Lucca, who took a bale of ſilk for their arms, with the inſcription—*Dei munus diligenter curandum pro vita multorum* ‡‡. In 1525, the ſilk manufacture at Milan employed twenty-five thouſand people; and it ſeems to have augmented till 1558 ‖‖. In 1423, the Republic of Florence took off the duty of entrée upon mulberry leaves, and prohibited the exportation; and ſome communities of Tuſcany have records concerning ſilk anterior to that period §§.

In almoſt all the diſtricts of the Milaneſe, mulberry trees are met with, very old, with towering branches; among which are thoſe of Sforzeſca, planted under Ludovico il Moro *†, who lived at the end of the fifteenth century.

VENETIAN STATE.—*Vaprio to Bergamo.*

There are many mulberries, mixed with the cultivation of corn and vines, in this tract of country.

* *Atti Societa Patriotica*, vol. ii. p. 220. † *Saggio ſopra la Replicata Raccolta della Foglia del Gelſo*, 1775, p. 1. ‡ *Dizionario del Filugello*, 12mo, 1771, p. 43. ‖ *Ragionamente ſopra Toſcana*, p. 49. § *Decima*, tom. ii. ſez. 5. cap. 4. ** *Benedetto Dei.* †† *Giannone Storia Civ.* Y. ii. lib. 11. cap. 7. p. 219. *Giulini*, tom. v. p. 461. ‡‡ *Saggio*, &c. p. 56. ‖‖ *Opuſc. Scelte*, vol. vii. p. 12. *Bartolozzi.* §§ *Corſo di Agricoltura Pratica. Laſtri*, tom. i. p. 285. *† *Elementi d'Agricoltura. Mitterpacher*, tom. ii. p. 513.

Bergamo.

Vicenza.

The produce of ſilk amounts here to about 6 liv. the *campo*, over a whole farm; this is about 3s. an acre. The *ſacco* of leaves weighs 75 lb. and forty *ſacchi* are neceſſary for one ounce of ſeed; which gives 100 lb. of cocoons, and 10 lb. of ſilk. One hundred trees, of twenty years old, yield forty *ſacchi*; price 3 liv. to 11 liv.; commonly 3 liv. Price of cocoons 30*ſ.* to 50*ſ.* the pound.

I was glad here to meet with ſome intelligence concerning the new ſilk worm, ſaid to have come from Perſia, which they have had here eight years, but is in the hands of ſo few perſons, that I could get none of the ſeed; and I ſuſpect that it is loſt; for, on repeated inquiries, I was referred to other parts of Italy. While they had this worm, they had four crops of cocoons a year:—1. In the beginning of June. 2. The end of the ſame month. 3. The middle of Auguſt. 4. In October. This worm is eſſentially different from the common ones in the circumſtance of hatching: no art will hatch the eggs of the common ſort the firſt year, that is the year of the flies dropping them; they can be hatched the year following only; but of this new ſort, the eggs will hatch in fifteen days the ſame year, if they be in the proper heat. But it is to be obſerved, that they uſe this ſort of worm not really to command ſeveral crops in the ſame year, for mulberry trees will not bear it without deſtruction, but merely as a ſuccedaneum to the common ſort of worms, if by froſts in the ſpring they be loſt for want of food; this new ſort is in reſerve, to apply the leaves to profit once in the year. Theoretically the plan is good; but there muſt have been ſomething in practice againſt it, or we may conjecture that after many years the uſe of them would have been generally introduced.

This will not be an improper place to introduce ſome remarks on this ſubject, by an author much eſteemed, but quite unknown in England. It appears from the work of Count Carlo Bettoni, of Breſcia, that the diſcovery of the new ſilk worm aroſe from experiments made with a view of finding out a cure for the ſickneſs of mulberry trees, called *moria*; this was ſuppoſed to ariſe from ſtripping the leaves in the ſpring annually; it was thought, that if ſome means could be diſcovered of poſtponing the gathering much later in the year, it would greatly favour the vegetation and health of the trees; an effect that could only take place by means of a worm that would hatch much later than the common one. In 1765, a ſecond hatching of the eggs of the common worm is ſaid, by the ſame author, to have been made; part of which were fed with the ſecond growth of leaves, and part with the leaves of trees that had not been gathered in the ſpring. Thoſe fed with the old leaves gave a greater number of cocoons, and of a better quality than the others. Theſe experiments were repeated by many perſons; and it was found, that in the heats of July and

and Auguſt the worms would not do well; but in September much better, and that the trees did not ſuffer from having their leaves gathered in September. The ſame author ſays, that the new worms (which he calls *foreſtieri*) will hatch three times a year, and that no art will prevent it; no cellars, no cold will keep them from it, though it may retard them ſome time, as he tried in an ice-houſe, by which means he kept them inert till Auguſt. But, on the contrary, the common ſort cannot in general be hatched a ſecond time the ſame year, even with any heat that can be given; yet he admits, that they were hatched by certain perſons in 1765. The new ones ſleep four times, like the common ones, but begin to ſpin their cocoons five or ſix days ſooner: they eat leſs in quantity, but give leſs ſilk; and as this defect is balanced by the advantage in food, they ought not, ſays the Count, to be proſcribed. Their cocoons are ſmall, but the conſiſtency is good and fine; and their ſilk is fine and ſofter than the common: he ſold it for 4 liv. or 5 liv. a pound more than common ſilk. There is, however, an evil attends them, which is the uncertainty of their hatching the ſecond and third time; ſometimes all the ſeed will hatch, but at others only a part; even only the ſeventh and tenth of the quantity: but the firſt hatching is regular, like that of the common worms. A circumſtance in the courſe of his trials deſerves noting, that he found the worms of both the old and new ſorts would drink water when offered to them, and that the cocoons were the larger for their having had the water.

They have had a ſort in Tuſcany that hatches twice a year; and the Count writing thither for information concerning them, found that their ſilk was coarſer than the common, and of leſs value; and he judges them to be a different kind from his own, which hatches three times. The Count concludes nothing determinate concerning them; but reſolves to continue his numerous experiments and obſervations. As there may be perſons who think, as I did at firſt, when I heard of this ſort of worm, that if any ſucceed in England it would probably be this; it is proper to obſerve, that Count Bettoni had nothing in view but the diſeaſes of the mulberry trees, and does not ſeem to have had at all in contemplation the evils attending late froſts, depriving the worms of their uſual food; and if the common ſort may be retarded in hatching (which he ſhews) till Auguſt, equally with the new ſort, there does not ſeem to be any extraordinary advantage in this ſort, for a northerly climate, more than in the others. The Count's book * was printed at Venice in 1778.

Sig. Pieropan has made an obſervation, which deſerves noting; mulberries, and likewiſe other trees, are generally found to ſucceed much better when grafted a little before ſun-ſet than at any other time: the reaſon he attributes

* *Progetto per preſervare i Gelſi*, &c. *Co. Carlo Bettoni.* 8vo. Various paſſages.

to the heat of the earth after ſun-ſet; he kept a journal ſome years, of the comparative heat of the atmoſphere and the earth, at the depths of four, twelve, and twenty-four inches; and has found, that immediately after the ſetting of the ſun the mercury in thoſe thermometers under ground had always riſen ſome degrees gradually till the riſing of the ſun, when it as regularly falls.

The following is the Account of the Profit and Loſs of Six Ounces of Seed, for Three Years, at Vicenza, by Sig. Carlo Modena.

1778.

Expences.	liv.	ſ.	den.
Semenza—ſeed, 6 oz.	36	0	0
Foglia—leaves, 26,475 lb.	1545	4	0
Speſa—gathering leaves and attendance,	868	16	0
Filare—ſpinning 992 lb. cocoons, which give 159 lb. 5 oz. ſilk,	557	18	0
	3007	18	0

Produce.			
159 lb. 5 oz. of ſilk,	4144	15	0
Refuſe ditto, 41 lb.	102	10	0
Seed, 55 oz.	330	0	0
	4577	5	0
Expence,	3007	18	0
Profit,	1569	7	0

1779.

Expences.			
Seed, ſix ounces, half given to the peaſants, three ounces,	18	0	0
Leaves, 15,607 lb.	753	9	0
Spinning—the produce 446 lb. cocoons, half of which, 223 lb. to the proprietor, 29 lb. of ſilk,	101	10	0
	872	19	0

Produce.				
29 lb. of ſilk,	754	0	0	
Refuſe ditto,	21	2	0	
				775 2 0
Loſs,				97 17 0

1780.

1780.—Upon his own account.

Expences.	*liv.*	*ſ.*	*den.*
Seed, 6 oz.	36	0	0
Leaves, 370 ſacks,	957	13	0
Gathering and attendance,	1303	12	0
Spinning 910 lb. of cocoons,	265	0	0
Reducing 118 lb. 6 oz. of ſilk into organzine,	451	10	0
	3013	15	0
Produce.			
Refuſe ſilk,	116	4	0
118 lb. 6 oz. of organzine,	4325	5	0
Leaves ſold,	28	0	0
Silk kept for own uſe, 2 lb. 3 oz.	49	10	0
	4518	19	0
Expences,	3013	15	0
Profit,	1505	4	0

This year the profit would have been much greater; but through the negligence of the women in the night, not attending to the degrees of heat (from 25 to 27 deg. Reaumur), many were ſuffocated *.

To Padua.

One ounce of ſeed gives 60 lb. of *galetta* (cocoons), and 8 lb. to 10 lb. of *galetta* 1 lb. of ſilk: the ounce of ſeed requires ſixteen ſacks of leaves, of four *peſi*, each 25 lb.; and twelve ſmall trees yield one ſack, but one great tree has been known to yield ſix ſacks. Price of gathering, 20*ſ.* the ſack. Expence of making 60 lb. of ſilk, 250 liv. Spinning, 30*ſ.* the pound. Cocoons ſell at 30*ſ.* to 36*ſ.* Silk this year, 25 liv. the pound, *ſotile*.

Padua.

One ounce of ſeed gives in common 30 lb. of cocoons, and 8 lb. of cocoons 1 lb. of ſilk: twenty ſacks, of 80 lb. of leaves, are neceſſary to feed the worms of an ounce of ſeed. Price of gathering, 20*ſ.* the ſack. The greateſt trees give ten ſacks of leaves each; a tree of twenty years four or five ſacks. It is not

* *Opuſcoli Scelti*, tom. iii. p. 33.

the

the general cuſtom to divide this buſineſs with the peaſants. The common ſort of ſilk worm is hatched about the 25th of April; the others the middle of June; but ſilk demands a more expenſive operation in the latter ſeaſon.

Venice.

There are three ſorts of ſilk worms:—1. The common one, which caſts its epiderm, or ſleep as it is called, four times. 2. A ſort known at Verona, that caſts only three times; the cocoons ſmaller than thoſe of the other ſort. 3. The new ſort mentioned by Count Carlo Bettoni, the ſeed of which hatch two or three times a year; but the others only once. The ſeed of the two firſt ſorts cannot be hatched the ſame year it is dropped; but that of the third will hatch of itſelf, if it be not carefully kept in a cool place.

Bologna.

One hundred pounds of cocoons are made from 1 oz. of ſeed, and yield 7½ lb. to 8½ lb. of ſilk, of 12 oz. Price of cocoons, 20 to 25 *baiocca*. Silk, 34 *pauls*, at 6d. the pound.

TUSCANY.—*Florence.*

Making inquiries here concerning the new ſort of ſilk worm, I found that they were not, as I had been before told, a new diſcovery in Italy, but known long ago; and, what is remarkable, is prohibited by law, in order to preſerve the mulberry trees from being ſtripped more than once. The ſilk made from them is not more than half as good as the common, and very inferior in quantity alſo. They aſſert here, that by means of heat they can hatch the eggs of the common ſort when they pleaſe, but not for any uſe, as they die directly; which is not the caſe with the new ſpecies, or that as it is called *di trè volte*.

Their contrivance for winding ſilk is very convenient, and well adapted to ſave labour; one man turns, for a whole row of coppers, the fires for thoſe which are without the wall; and the cloſets with ſmall boilers of water, for killing the animal in its cocoon by ſteam, are equally well adapted.

At Martelli, near Florence, on a farm of 190 *ſtiori* (34 acres) there are forty or fifty mulberries, enough for 1 oz. of grain, which gives 50 lb. or 60 lb. of cocoons, and 6 lb. or 7 lb. of ſilk. Price of cocoons this year, 2 *pauls* the pound; laſt year 2½; and in 1787 it was 3 *pauls*. In the culture of the trees they do not practiſe ſuch attentions as the French in Dauphiné; they never dig about them, except when young; never waſh the ſtems; they prune the trees when neceſſary, but not by any rule of years. The beſt ſort is the wild mulberry, but it yields the leaſt quantity; next, the white fruit.

In

In 1782, Sig. Don Gio. Agemi di Giun, prelate of the Greek Catholic church, on Mount Libanus, exhibited to the academicians Georgofili of Florence, the 4th of December, ſome ſilk worms, in number thirty-eight, part of which had already made their cocoons, and part ready to make them, as accuſtomed to do in his own country, with the leaves of the wild mulberry. The ſeed was hatched in October; the worms fed with leaves, procured from warm gardens; cocoons were made in November; mallow leaves were uſed alſo *.

MODENA.

The export of ſilk from the city 46,000 lb. at 38 liv. (4d. each); from the whole territory, 60,000 *zecchini*.

PIEDMONT.—*Paveſe.*

Immediately on entering the dominions of the King of Sardinia, within two miles of St. Giovanne, mulberries are found regularly every where, and continue to Turin. Seven-eighths of them are about twenty or twenty-five years old; ſome however are amongſt the largeſt I have ſeen.

LOMBARDY POPLARS.

They are very ſcarce throughout Lombardy; there is a ſcattering between Modena and Reggio; and Count Tocoli, five or ſix miles from Parma, planted ſeveral thouſands along a canal, on the birth of his daughter, for her portion; but there is not, in any part of Lombardy, any law which in ſuch caſes ſecures the property of the trees thus planted, to the child they are intended for; it is merely private confidence.

CLOVER.

PIEDMONT.—*Chentale.*

Such is the power of climate united with the advantages of irrigation, that clover is here mown for hay once after harveſting the corn it grew with; the hay is not of the beſt quality, but uſeful.

MILANESE.—*Milan to Pavia.*

On the rich dairy farms, the cows are fed much on clover. The red ſort is ſown, which wearing out, white clover comes ſo regularly, that the country people think the one ſort degenerates into the other.

* *Corſo*, vol. iii. p. 123.

Vicenza.

Vicenza.

They ſow 12 lb. of ſeed per *campo* with wheat; it is cut twice the firſt year, yielding 1 *carro* each cut; the ſecond year it is mown thrice: price 44 liv. the *carro*, which is 100 *peſi*, of 25 lb.

Padua.

Sow 12 lb. *groſſo* per *campo* (14 lb. or 15 lb. per Engliſh acre) it gives three *carri*, each 1000 lb. at three cuts (1¼ ton the acre Engliſh;) but they have crops that go much beyond this.

FIGS.

PIEDMONT.—*Nice to Coni.*

On this range of the Alps, there are, in favourable ſituations, a great quantity of fig trees; and the extreme cheapneſs of the fruit muſt be of no trivial importance in ſupporting the people, not only while ripe but dried.

HEMP AND FLAX.

PIEDMONT.—*Chentale.*

A *giornata* (to an acre as 7440 to 7929) produces 200 lb. for the proprietor, and as much for the farmer; and ſome crops riſe to 650 lb. They gather the female hemp from the 25th of July to the 4th of Auguſt: the male the beginning of September. Of ſome pieces I was informed that a produce not uncommon was 30 *rubbii* of female, and 17 of male, worth 4½ liv. to 5 liv. the *rubbio*, both of the ſame price; and alſo 25 to 30 *mine* of ſeed, if well cultivated; but if not, 12 to 15. The *mine* 35 lb. and the price 4½ liv. to 5 liv. the *mine*. The common calculation is, that a *giornata* is worth 150 liv. to 200 liv. which may be called 10l. per Engliſh acre. Their contrivance for ſteeping is very ſimple and effectual: there are many ſquare and oblong pits with poſts in them, with open mortiſes for fixing poles to keep down the hemp, which is vaſtly preferable to our ſods and ſtones.

Turin.

They ſow 3 *mine* (45 lb. of wheat), and get 30 *rubbii*, at 4 liv. 10*ſ.* to 5 liv. the *rubbio* groſs; but ready for ſpinning 12 liv. 10*ſ.* the fineſt; the ſecond quality is 7 liv. 10*ſ.*; and the third 5 liv.; beſides 3 *mine* of ſeed, at 2 liv. each. This product is above 8l. the Engliſh acre.

MILANESE.

MILANESE.—*Mozzata.*

Winter flax is here eſteemed the properer for land that is not watered; they ſow it the middle of September; they have had it in this country two years only, and call it *lino ravagno*. It gives a coarſer thread than ſpring flax, but a greater quantity, and much more ſeed. The price of the oil 22*ſ.* the pound, of 28 oz.; of the flax, ready for ſpinning, 25*ſ.* or 26*ſ.*; of the thread, 4 liv. and 4½ liv. A *quartaro* of ſeed is neceſſary for a *pertica*, for which it returns eight times the quantity of ſeed, and 20 lb. of flax ready for ſpinning, at 25*ſ.* the pound.

Codogno.

When they break up their clover lands they ſow flax on one ploughing, which is worth rent 20 liv. and crop 40 liv. per *pertica*, being 24 lb. of 28 oz. and ſeed three times more than ſown. Much winter flax now green.

VENETIAN STATE.—*Bergamo.*

Winter flax green in October.

ECCLESIASTICAL STATE.—*Bologna.*

The territory of Bologna produces from 12 to 14,000,000 lb. of hemp. They manure for it highly with dung, feathers, the horns of animals, and ſilk worms refuſe. The beſt hemp-land is always dug; the difference between digging and ploughing is found to be very great. If ploughed, three earths are given; when the ſpade is uſed, the land is firſt ploughed and then dug. For this crop five or ſix yards are left *unſown* under the *rows of trees*. The ſoil agrees ſo well with this plant, that the crop riſes ten feet high; they gather it all at once, leaving only a few ſtands for ſeed. It is watered in ſtagnant pools. A good product is from 100 lb. to 200 lb. of 12 oz. per *tornatura*, of half an acre. The price of the beſt is from 20 liv. to 27 liv. the 100 lb. At preſent 25 liv. (the Engliſh pound one-fifth larger than the Bologneſe, and the livre of the Pope's dominions is ten to the *zecchin*, of 9s. 6d.) ready for combing. When ready for ſpinning, the price of the beſt is 12*ſ.* the pound; and they pay for ſpinning ſuch 6*ſ.* to 15*ſ.* the pound. Near the city, I viewed a field famous for yielding hemp: no trees are planted acroſs it, which is ſo common in the country in general; a ſure proof of the pernicious tendency of that ſyſtem; ſince in very valuable fields theſe people themſelves reject the method. Little or no hemp on the hills near Bologna, but ſome autumnal flax for family uſe.

MAIZ.

PIEDMONT.—*Chentale.*

Maiz produces here 25 to 30 *mine*, which holds 47 lb. of wheat, and the price 2 liv. each. It is ſown on three feet ridges.

Savigliano.

Maiz, in a good year, will yield three hundred fold, but in a dry one ſometimes ſcarcely any thing.

Turin.

Made every where the fallow, which prepares for wheat.

Chivaſco to Verceil.

A great deal of maiz through all this country, and all foul with graſs and weeds, even to the height of two or three feet.

MILANESE.—*Milan.*

They ſow much maiz, of the ſort called *quarantino*, from its ripening in forty days (which however it does not). They ſow it the middle of July, after wheat, which they cut the firſt week of that month. If the common maiz were ſown at this time, they aſſert that it would yield no ripe ſeed: this is a very curious circumſtance. The culture has been often recommended to England; if ever any thing were done, it muſt aſſuredly be with this ſort; but even with this I ſhould put no faith in the power of an Engliſh climate.

Mozzata.

They cultivate three ſorts:—1. *Formentone maggengo*, ſown the beginning of May, and reaped in October. 2. *Formentone agoſtano o formentone de ravettone*, becauſe ſown after taking off the rave or coleſeed for oil, the end of May, and harveſted the end of September. 3. *Formentone quarantino*, ſown after wheat or rye, and cut the end of October.

Venice.

This plant was cultivated in the Poleſine de Rovigo, towards 1560; and ſpread through Lombardy the beginning of the 17th century *.

* *Agoſt. Gallo.* Notes, p. 534.

OLIVES.

STATE OF VENICE.

On the banks of the Lago di Guarda are the only olives I have ſeen ſince I left the country of Nice; but the number is not conſiderable, and moſt of them are dead, or nearly ſo, by the froſt of laſt winter, which made ſuch deſtruction likewiſe in France.

Tuſcany.

Near Florence, at Martelli, the product of a farm of 190 *ſtiori* was as follows: in 1786, thirty *barrils*. In 1787, it was no more than three. In 1788, it yielded eight. In 1789, it was twenty-five; but on an average ten; for which produce there are two hundred trees. They are dunged every two or three years, and dug about once in three years. They are reckoned to leſſen the product of corn one-fifth; this is a notion of the country, but I believe very far from accurate. The average price of oil is 5 *ſcudi* per *barril*, of 150 lb. (11. 8s. 4d.); ten *barrili* amount to 14l. 3s. 4d.; and as there are about thirty-four acres in 190 *ſtiori*, the product of oil is 8s. to 9s. per acre: a ſum that yields no very favourable impreſſion of the culture:—and, divided amongſt two hundred trees, it does not amount to 1s. 6d. a tree.

The plain of Florence is all lined into rows of theſe trees, with vines between and upon them; in ſome places, an eſpalier of vines between the rows of olives; and when all are well cultivated, the olives yield the greateſt produce, next the wine, and then the corn. I viewed, near Florence, ſome fields, in which I found twenty olives on a *ſtiora* of land, but this is not common: and on a very bad ſtoney ſoil, though in the plain, I found that it took twenty trees, of twenty-five years growth, to yield a *barril* of oil. But in a fine ſoil, and with very old trees, a *barril* a tree has been known. Vines are ſuffered here alſo to run up the trees, but they reckon it a bad cuſtom. The price of oil is more than doubled in forty years. Very few olives were loſt by the laſt hard froſt, but great numbers by that of 1709. Landlord's half produce, of ſome fields I viewed—oil, 10 *pauls*; grain, 7; wine, 1; in all, 18 *pauls* per *ſtiora* (2l. 5s. per Engliſh acre.)

This year, 1789, the Grand Duke, for the firſt time, has given a gold medal, of the value of 25 *zecchini*, for the greateſt number of olives planted; no claimant to be admitted for leſs than five thouſand: in conſequence of this premium, above forty thouſand trees have been planted. It will be continued annually.

There is, in the Maremma, ſome remarkable inſtances of the vaſt age to which olives will attain: Sig. Zucchino, profeſſor of agriculture at Florence, informed me, that, upon examining the hills in the middle of that tract, he found in the midſt of woods, and almoſt over-run with rubbiſh, olives of ſo immenſe an age and magnitude, that he conjectures them to have been planted by the ancient Hetruſcans, before the Romans were in poſſeſſion of the country; there muſt, of courſe, be much uncertainty in any conjectures of this kind; but a great antiquity of theſe trees is undoubted.

RICE.

PIEDMONT.—*Ciglione to Verceil.*

They are now threſhing rice with horſes, as wheat in Languedoc;—threſh as much in the night as in the day:—meet alſo gleaners going home loaded with it. About five miles before Verceil, the rice-grounds are in great quantities: their culture, however, of this crop ſeems to want explanations. Here is, for inſtance, a great field, which was under rice laſt year, now left to weeds, with hogs feeding.—Why not ſown with clover among or after the rice? They never plough but once for rice. The peaſants are unhealthy from the culture; yet their pay not more than 24*ſ.* to 30*ſ.* a day. The ſoil of the rice-grounds here, is that of a fine loamy turnip ſand; there is a mound raiſed around them, for the convenience of flooding at will.

Vercelli.

Rice is here reckoned the moſt profitable of all the cultivation of Piedmont; for it yields a greater value than wheat, and at a leſs expence. It demands only one ploughing, inſtead of ſeveral. Seed only 4 *mine*, at 1 liv. Watering, at 2 liv. 5*ſ.* Cutting, the end of July, 10*ſ.* The product is 60 *mine* rough, or 21 white; the latter at 4 liv. or 84 liv.; and 4 *mine* of a ſort of bran, at 15*ſ.* or 3 liv.; in all 87 liv. (ſomething under 5l. an acre). It is ſown three years in ſucceſſion; and the fourth a fallow; during which the land is dunged. The price of theſe lands, 500 liv. or 600 liv. the *giornata*. As rice can be ſown only on land that admits watering at pleaſure, I do not fully comprehend this account. Why, for inſtance, is not the land laid down for meadow, which evidently pays much better; and ſells at a higher price? I ſuppoſe rice is ready money on demand, and meadows muſt be converted to caſh circuitouſly. Good wheat land ſells at 800 liv.

To Novara.

Paſſing the Seſia, which exhibits a bed of five times as much gravel as water, in three or four miles the quantity of rice is conſiderable: the ſtubble is green, and in wet mud; the ſheaves thin. It extends on both ſides the road for ſome diſtance; the whole incloſed by ditches, and rows of willow poplar pollards, as bad to the eye, as it can be to the health. One or two fields are not yet cut; it looks like a good crop of barley, being bearded. After Novara, ſee no more of it.

MILANESE.—*Milan to Pavia.*

The rice-grounds receive but one ploughing, which is given in the middle of March, and the ſeed ſown at the end of the ſame month, in water to the ſeedſman's knees, which is left on the ground till the beginning of June, when the crop is weeded by hand, by women half naked, with their petticoats tucked to their waiſts wading in the water; and they make ſo droll a figure, that parties in pleaſantry, at that ſeaſon, view the rice-grounds. When the weeding is finiſhed, the water is drawn off for eight days; and it is again drawn off when the ear begins to form, till formed; after which, it is let in again till the rice is nearly ripe, which is about the end of Auguſt, when it is reaped, or in the beginning of September; and by the end of that month, all is finiſhed. Quantity of ſeed, the eighth of a *moggio* per *pertica*, produce 25 to 30 *moggio* rough, or 11½ or 12 white. Price 37½ liv. the *moggio*, (17l. 8s. per Engliſh acre), which produce is ſo large, that this minute I ſuſpect the higheſt crop gained, and not an average one. The *moggio* of rice weighs 160 lb. of 28 ounces. The ſtraw is of uſe only for littering cows; and the chaff, like that of all other grain, from a notion of its being unwholeſome, is thrown on to the dunghill. They ſow rice three years in ſucceſſion, and then a courſe of ſomething elſe. See *Courſes of Crops*. The rice is rendered merchantable by being pounded in a mill by ſtampers, turned by a water-wheel.

In the great road there is a ſtone, at five miles from Milan, nearer than which it is prohibited to ſow rice.

STATE OF VENICE.—*Verona.*

Of the produce of the rice-grounds in the Veroneſe, they reckon one-third for expences, one-third for water, and one-third profit.

PARMA.

Count Schaffienatti has ſown rice, at Vicomero, eighteen years in ſucceſſion, on the ſame land, without any reſt or manure. Sow on 54 *biolcchi* 90 *ſtaji*; and

and the produce 18 for 1. He digs the ground, as it is too marſhy to plough it well; this coſts 3000 liv. (each 2½d.) The ſtraw ſells at 80 liv. the load, of 80 *peſi*, of 25 lb. (¼ lb. Engliſh). Oxen alſo eat it. Rice is reckoned to yield four times over more nett profit than any other huſbandry; more even than watered meadows.

VINES.

PIEDMONT.—*Antibes to Nice.*

A ſingular cultivation of this plant ſurrounding very ſmall pieces from ſix to twenty perches, trained up willow trees; and the ſcraps of land within them cultivated. What a ſun muſt ſhine in a country where thick incloſures are counted by perches and not by acres.

Chentale to Racconis.

In rows at twelve to twenty feet, and appear like thoſe of hops in Kent, ſupported on willow poles, twelve feet high, ſome of which take root, but are afterwards pulled up.

Chivaſco.

Vines faſtened from mulberry to mulberry, but not running up theſe trees, only up willows, &c. that are between them.

MILANESE.—*Mozzata.*

Half this country is lined with vines, and it is reckoned that they will damage to the amount of one-tenth of the produce: each *pertica* of vines, in a common year, will give 50 lb. of grapes, worth 6 liv. the 100 lb. of 28 oz. hail allowed for; and of this half is the peaſants ſhare, for the expence of culture. At Leinate, I viewed ſome wine preſſes, which are enormous machines, the beam of one is forty-five feet long and four feet ſquare; and at the end, where the ſcrew is, a ſtone of vaſt weight, for which there is a paved hole in the pavement, that it may keep ſuſpended; the cuves caſks, and all the apparatus great: the quantity of vines 1000 *pertica*. The ſeeds of the preſſed grapes are kept till dry, and then preſſed for oil; the ſeed of the grapes that yielded 70 *brenta* of wine will give 10 lb. of oil: it is uſed for lamps. The poor people, who bring their grapes to be preſſed, pay one-twelfth of the wine. Price at preſent, 6 liv. the *brenta*; but only 3 liv. for what is laſt preſſed. The firſt flow is trod out by men's feet. Common price, 10 liv. or 12 liv. the *brenta*.

VENETIAN

VENETIAN STATE.—*Bergamo.*

From entering the Venetian territory, near Vaprio, the country is almoſt all planted in lines of vines, and the ſpaces between tilled for corn.

To Breſcia.

This country, incloſed with hedges, beſides which it is lined in ſtripes of vines, that are trained to low aſh and maple trees, with mulberries at the end of every row; but the vines are not trained up theſe trees, though faſtened to their trunks.

Vicenza.

The country, for 32 miles from Verona to Vicenza, except the watered parts, which are not a tenth of the whole, is lined into rows of pollards, each with three or four ſpreading branches, and at the foot of each two vines, many of them very old, with ſtems as thick as the calf of a man's leg; and many of the elms, maples, &c. are alſo old. They ſtand about a rod aſunder, and the rows from twenty-five to thirty yards; and around the whole mulberries. Where the vintage is not finiſhed, the vines hang in feſtoons from tree to tree, garniſhed with an aſtoniſhing quantity of bunches of grapes.

Vines, near Vicenza, produce 2 *maſtati*, each of 240 bottles, per *campo*; the price 16 liv. the *maſtato*; the *campo* here is larger than at Verona, amounting to near an Engliſh acre; this is about 17s. an acre; a produce very eaſily loſt, in the damage done to the corn.

Padua.

The ſame huſbandry, of pollards and vines, continues hither. They reckon that vines pay better than mulberries; but in the diſtricts of Verona and Vicenza mulberries are more advantageous than vines. This does not correſpond with ſoil, for that of Padua is deeper and richer, for the moſt part, than the other, and therefore leſs adapted to vines. In converſation with Abbate Fortis, on the wine of the Paduan, &c. being ſo bad, he ſays, it is owing merely to bad management in making. They tread the grapes with their feet; put the juice in a great cuve; and will keep it fermenting there even ſo long as fifteen days, adding every day more and more, till the ſtrength is exhauſted, and the wine ſpoiled; no cleanlineſs, in any part of the operation, nor the leaſt attention in the gathering, or in the choice of the grapes. He further added, that Sig. Modena, a Vicentino cultivator at Vancimuglio, adjoining the rice-grounds, and conſequently as little adapted as poſſible to vineyards, provided the ſoil and

trees

trees were the cauſe of bad wines, makes that which is excellent, and which ſell ſo high as 30*ſ.* French per bottle: that Sig. Marzari, and Sig. il Conte di Porto, in the high Vicentino, with many others, as well as he himſelf, Abbate Fortis, has done the ſame with raiſins from vines that run up the higheſt trees, ſuch wine as ſells from 20*ſ.* to 35*ſ.* French the bottle: and that ſome of theſe wines are ſo good, that the Venetian ambaſſadors, at different courts, uſe them inſtead of Madeira, &c.; and the wines of Friuli as thoſe of Hungary, which they reſemble; yet theſe vines are all on trees. He alſo obſerved, that it has been found, by experiment, that vines in theſe rich lands, trained near the ground, as in France, have yielded raiſins and wine good for nothing; that the grapes even rot; that the land is too rich for the vines to have all the nouriſhment, unrivalled by the roots of the trees. It is very much to be queſtioned, if the experiments here alluded to, have been made with due attention: if the land is too rich for vines, plant them upon ſoils that are proper; and keep theſe low diſtricts for graſs and corn; but that vines, hidden from the ſun amongſt the branches of trees, can ripen properly to give a well-concocted juice, appears very dubious; and the fact of all the wine, commonly met with in this country, being bad, ſeems to confirm the reaſoning.

ECCLESIASTICAL STATE.—*Bologna.*

All this country, where I have viewed it, is lined into rows of trees for vines, ten or twelve yards aſunder, on the mountain, but more in the plain. But Sig. Bignami has his vineyards planted with *echalats* (poles), in the French way, about four or five feet ſquare, and he finds that theſe always give better wine than the vines trained to trees; and the land by *tornatura* gives a great deal more wine; though each vine ſeparately on trees, gives more than each in this method. The object, in this inſtance, was the goodneſs of wine; Sig. Bignami thinks the common method moſt profitable. The vines are now (November) trained and pruned, and turned down five or ſix feet and tied; if allowed to mount, they yield much fewer grapes. Vines on the mountains yield thrice the value of the wheat; and the double of all other productions, wheat included.

TUSCANY.—*Bologna to Florence.*

Vines in this route are planted differently from any I have yet ſeen. Some are in eſpaliers, drawn thinly acroſs the fields; others are trained to ſmall poſts, through which, at top, are two or three ſticks fixed to hold them up; others are in ſquares of five or ſix feet, and ſix or ſeven high, without ſuch poſts; but all in the arable fields are, generally ſpeaking, in lines.

Florence.

Florence.

I here met with a caſe abſolutely in point, to prove how miſchievous trees are to corn, even in this hot climate.—A field under olives, which yielded in corn 6½ for 1 ſown, was grubbed, after which the common produce was 14 for 1. Now, as the olive is by no means one of the worſt trees for corn, this ſhews the great loſs that accrues from the practices I have noted throughout Lombardy. Yet, in common converſation here, as elſewhere, they tell you the injury is ſmall, except from walnuts, which do more miſchief than any other.

MODENA.

It appears to be a ſingular circumſtance, that in the parts of this territory near the hills, corn pays better than wine; but in the plain, wine better than corn: I ſuſpect that ſome miſmanagement occaſions this apparent contradiction. From Modena to Reggio the country is planted in rows, as in the Venetian State, &c. and the trees that ſupport the vines being large, the whole has the appearance of a foreſt.

PARMA

From Reggio to Parma, the ſame ſyſtem holds, but executed in an inferior manner. And from Parma to Vicomero, the trees that ſupport the vines are pollards, with old heads, like many we have in England; contrary to the practice of the Venetian State, where they are kept young. To Firenzuolo, the vines are all buried in like manner; ſome here are planted for props, and the poles which ſerve as ſuch are ſet in rows: in both methods the ſhoots are equally buried. A ſcattering of golden willow in the rows, I ſuppoſe for attaching the vines to the props. From Borgo St. Domino to Firenzuola, there is a decline both of vines and wood; the country is not as hitherto, regularly lined, and many large fields are without any; this is the more to be remarked, as here begin ſome inequalities of country, the gentle ramifications of the Appenines. To Caſtel Giovanne, moſt of the fields have no vines, only a ſcattering; ſhoots buried as before; but the incloſures have many pollards in the hedges, like the woodlands of Suffolk. From Piacenza, after paſſing the Trebbia, the rows of vines are thirty to forty yards aſunder, with heaps of props, ten feet long, ſet like hop-poles; very few or no vines trained to trees.

PIEDMONT.—*Paveſe* *.

The country is all the way hill and dale; the flat of Lombardy finiſhing with the Dutchy of Piacenza. It is about half incloſed, and half with rows of

* The country ceded by Auſtria to Sardinia, part of the diſtrict of Pavia.

vines. There are alſo vineyards planted in a new method, a ſingle row of vines, with a double row of poles, with others flat, ſo as to occupy four ridges, and then four to ten of corn. Some vine ſhoots buried for a few miles, but afterwards none. Near Stradella, the props appear like a wood of poles.

SAVOY.

The vineyards of Montmelian yield 1½ *tonneau* per *journal*, which ſell at 4½ louis the *tonneau*: all, not in the hands of peaſant proprietors, is at half produce.

SECT. IV.—OF IMPLEMENTS AND TILLAGE.

Coni.

The ploughs have a ſingle handle, twelve or thirteen feet long, which throws the ploughman to ſuch a diſtance behind, that his goad is fixed in a long light pole. The oxen are yoked in the ſame manner as ours; but the bow is of iron under the neck, and the preſſure is received by two bits of wood. Some ploughs drawn by a yoke, others by two yokes of oxen.

Chentale.

The names which are given to the parts of a plough here are,—long handle, of fourteen feet, *ſtiva*; beam, *bura*; head, *cannonlia*; coulter rivetted to the ſhare, *cultor*; ſhare, *maſſa*; ground-reſt, on which the ſhare ſheathes, ſeven feet long, *dentale*; earth-board, five feet long, *oralia*.

The Count de Bonaventa, in explaining to me their tillage, ſhewed the criterion, as old as Columella, of good ploughing, by thruſting his cane acroſs the ridges, to ſee if reſt-baulked. They plough moſtly on the three feet ridge, forming and reverſing at one bout; *i. e.* two furrows; the work ſtrait. Uſe no reins, and have no driver, though the ploughman is above twenty feet from the oxen. Two ſmall beaſts cut a good furrow on the top of the old ridge, ſeven inches deep; and theſe ploughs, long as they are in the ground, certainly do not draw heavily.

The oxen, whether at plough or in the waggons, do not draw, as I conceived at firſt ſight, by the ſhoulder, but in a method I never ſaw before, nor read of; they draw by preſſing the point of the withers againſt the yoke, and not at all by the bows; and in examining them, the maſter and man contended that the ſtrength of an ox lies there, and not in his ſhoulders, nor in his head,

or

or roots of the horns. It appears a ſtrange practice; but it is yet ſtranger, that yoke a beaſt how you will, he does his work, and apparently without diſtreſs.

Chentale to Racconis.

They have here a moſt ſingular cuſtom, which is that of ſhovelling all the moveable ſoil of a field, into heaps of a large load; earth, ſtubble, and weeds; they ſay, *per ingraſſare la terra.*

To Turin.

The lands ſown with wheat on three feet ridges, is worked fine with a machine of wood, at the end of a handle, formed nearly like a hoe. Wherever one ſees theſe operoſe niceties, we may conclude the farms are very ſmall.

Turin.

Plough with a pair of oxen, no reins, no driver; go to work at five in the morning, and hold it till night, except 1½ hour at dinner; that is twelve hours work, and do a *giornata* a day, ſomething under an acre, one bout to a three feet ridge, reverſing.

Vercelli.

Price of a ploughing, 3½ liv. per *giornata*, this is about 3s. 4d. per Engliſh acre.

MILANESE.—*Milan to Pavia.*

Hire of a ploughman and pair of oxen, 4 liv. a day; but if no food for the oxen, 6 liv. The ploughs here vary from thoſe of Piedmont. The handles are not above half as long, and are called *ſtiva*; the beam, *buretto*; the coulter, *coltura*; the ſhare, *maſſa*; the earth-board, *orechio*; the land-board, *orechini*. There is a moſt groſs and abſurd error in all the ploughs I ſaw, which is the poſition of the coulter, 18 or 20 degrees too much *to the land*; every one who is acquainted with the right ſtructure of a plough, know that it ſhould juſt clear the ſhare; this great variation from the right line, muſt add greatly to the draft; and, in difficult land, fatigue the cattle.

Mozzata.

A light poor plough, the ſhare with a double fin, but ſo narrow as to cut only four inches of the furrow; the heel of the plough is nine or ten inches wide; the work it performs is mere ſcratching; and the land they were ſowing

with wheat, a bed of *triticum repens* and *agroſtis ſtoloniſera*. They have here a great opinion of digging; and a proverb, which ſays, *La vanga ha la punta doro*—The ſpade has the point of gold.

Codogno.

Here, as near Milan, the coulters are many degrees out of the line of the ſhare; and the ſhares not more than four inches wide. Shocking!

Codogno to Crema.

The harrows in this country have handles to them of wood; I am amazed this practice is not univerſal; yet I never ſaw it before, except on my own farm.

VENETIAN STATE.—*Bergamo.*

In paſſing from Vaprio to this place, they are ploughing with a pair of oxen a-breaſt, and two horſes before them in a line; wheel-ploughs; ſhare five inches wide, and with a double fin. Near the town of Bergamo, I ſaw them ploughing a maiz ſtubble for wheat, as full of graſs almoſt as a meadow: a lad drives, and another ſtout one attends to clear the coulter from graſs, &c.; the plough low on the carriage, with wheels; the breaſt all iron, and not ill formed; the fin of the ſhare double, and about eight inches wide; the coulter nearly in the ſame direction as the ſhare, but clearing four inches to the land ſide; two ſhort handles. The furrow full nine inches deep; but crooked, irregular, and bad work. Notwithſtanding this depth, they are great friends to the ſpade. From four to ſix for one, are common crops with the plough, but twelve to fourteen for one, are gained by the ſpade. There muſt be an inaccuracy in this; the difference cannot be owing merely to digging. We may be certain, that the huſbandry, in other reſpects, muſt be much better.

Vicenza.

They here plough with four oxen in harneſs; many of them are of an iron-grey colour, with upright thick ugly horns. Some, however, are fine large beaſts. Their plough is a ſtrange tool; it is two feet four inches of Vicenza wide, (their foot is above 11½ Engliſh): the ſhare has a double fin, of a foot wide; conſequently cuts half a foot in the furrow of more than two: has wheels, but no coulter. The land-board is called *fondelo*; the ſhare, *vomero*; the earth-board, or breaſt, *arſedeman*; two ſhort handles, the left *ſiniſtrale*; the right *brancole*; the beam, *pertica*.

ECCLESIASTICAL

ECCLESIASTICAL STATE.—*Bologna.*

The coulter of the ploughs here ſtand 16 degrees from the right line; an incredible blunder, had I not before met with it in the Milaneſe. The beam, *pertica*; the handles, *ſtiva*; the mould-board. *aſſa*; the ſhare, *gomiera*; the ground-reſt, *nervo del ſocco*; the coulter, *coutre*.

TUSCANY.—*Florence.*

Here the beam is called *ſtanga*, and *bura*; the ſingle handle, *ſtagola*; the body of the plough, *chicapo di aratro*; the ſhare, *vangheggiola*. The body is hewn out of one large piece of wood; the fin double, and ſeven or eight inches wide.—I ſee no ploughing but on three feet ridge-work; reverſing. They are now ſowing wheat among tares, about ſix inches high, and plough both in together at one furrow, ſplitting the ridges with a double-breaſt plough. Oxen are uſed, that draw by the nape of the neck; then women, with a kind of half pick, called *marona*, work the ridge fine. No dreſſing of the ſeed againſt ſmut, &c.

PARMA.

The plough here has wheels; a ſingle-breaſt, that turns to the right, and pretty well; a double finned ſhare; and the coulter ſtanding three inches to the left of the right line; drawn by two oxen, and two cows, with a driver.

SAVOY.

The oxen in the vale of Chamberry, draw not only by the horns, the yokes bound to them in the common way by leathers, but they have a double bar, one againſt the ſhoulders, as if the beaſt might be able to draw by both at pleaſure.

MANURES.

Nice.

There is here a greater attention paid to ſaving and uſing night ſoil, than even in Flanders itſelf. There is not a neceſſary in the town which is not made an object of revenue; and reſerved or granted by leaſe. In all the paſſages between the walls of gardens, in the environs, are neceſſaries, made for paſſengers. The contents are carried away regularly in barrels, on aſſes and mules; and being mixed with water, is given regularly to the vegetables of the gardens. The laſt winter having damaged many orange trees, they pruned off the damaged branches;

branches; and, to encourage them to ſhoot again ſtrongly, the roots are dug around, and at the foot of each tree, a good meſs of this invigorating manure is buried.

MILANESE.—*Milan.*

Night ſoil is greatly valued; it is bought at a good price, and ſpread on ſowing wheat.

STATE OF VENICE.—*Vicenza.*

Sig. Giacomello has tried gypſum with ſucceſs, broken ſmall and calcined in an oven; alſo in a lime kiln; pulveriſes it finely, and ſifts it. He remarks, that this is the chief uſe of calcination. Uſes it for clover, lucern, and meadows; ſows it as a top dreſſing on thoſe plants, juſt as they riſe; never buries it; mixes with ſand, in order to ſpread equally; beſt to ſow it when the land is dry; never when the plants are high and wet: quantity, 140 lb. *groſſo*, upon 1250 *tavoli* of Treviſo. If the land is bad, 300 lb.; and on middling, 200 lb. The effect on perennial clover, upon good land, is ſuch, that any greater crops would rot on the ground. The ſame quantity of meadow that gives, without gypſum, a *carro* of hay, will, with that manure, ſpread about the 11th of November, produce 2 *carri* the year following; 3 *carri* the year after that; and on ſome meadows even to 4 *carri*. On old poor meadows, full of hard and bad graſſes, this manure does not take effect ſo ſoon, and require a larger quantity of gypſum. (*Modi di aumentare i Beſtiami*, 1777, p. 9.)

Sig. Pieropan informed me, that this manure has been uſed here for eight years, with much ſucceſs, eſpecially on all dry lands, but is good for nothing on wet ones; it is ſuppoſed to act by attracting moiſture; 400 lb. of 12 oz. are ſpread on a *campo*; beſt for clover, wheat, or natural graſs. It is ſaid to force land ſo much, that it demands more dung, than if no gypſum had been ſpread.

Parma to Piacenza.

The dunghills in this country are neatly ſquared heaps.

CHAP.

CHAP. IV.

Of the Encouragement and Depreſſion of Agriculture.

IN every country, through which an inquiſitive man may travel, there can be no object of his inquiries more important than theſe—How far is government, and all the circumſtances any way dependent on government, favourable or unfavourable to the culture of the earth? In truth, this queſtion involves the whole circle of the political ſcience. In ſo immenſe a range, it is in the power of an individual to give but a few ſketches; which may afterwards, by ſome maſterly hands, be melted into one harmonious piece. All the writings on political œconomy, which I have hitherto read, are filled too much with reaſonings; yet experiment ought to be the only foundation. The facts which I have collected under this head, may be thus arranged:—1. Government.—2. Taxation.—3. Tythe.—4. Commerce.—5. Population.—6. Prohibitions.—7. Prices of commodities.

SECT. I.—OF GOVERNMENT.

It is a vulgar error, of no inconſiderable magnitude, to imagine, as many writers have done, that all arbitrary governments are the ſame. Whoever travels into countries under various forms of dominion, will find, from innumerable circumſtances, that ſtrong diſtinctions are to be made. The mildneſs of that of France can never be miſtaken, which was ſo tempered by what *was* the manners of the people, as to be free in compariſon with ſome others. Among the Italian ſtates the difference will be found to be conſiderable.

The dominion of the Houſe of Auſtria has been, by ſome, conſidered as hard, harſh, and unfeeling; till the admirable Leopold retrieved, by the wiſdom and humanity of his government, in Tuſcany, the character of his Houſe. By the conſtitution of Milan, no new tax could be aſſeſſed or levied without the conſent of the States; but Mary Thereſa, about the year 1755, aboliſhed the States themſelves, which never were reſtored till Leopold came to the throne. It may eaſily be conceived, that ſuch a ſyſtem of deſpotiſm, was followed by meaſures that partook of its ſpirit; the general farms, by which I mean the farming of the taxes, which had from the beginning

ning of the preſent century been grievous to the people, became doubly ſo about the year 1753, when new ones were eſtabliſhed. The adminiſtration of theſe farms was cruel, or rather infamous; and the ruin brought on numbers, for the ſmalleſt infraction of the regulations, ſpread a horror againſt the government through every corner of the Milaneſe, and tended ſtrongly to occaſion a declenſion in every ſource of national proſperity. The abolition of theſe farms, was the work of the Emperor Joſeph; who heard ſuch a reiteration of complaints againſt the farmers, whoſe great wealth * rendered them doubly odious, that he made ſuch repreſentations to his mother, as were effectual, and they were aboliſhed about eighteen years ago. The preſent Emperor no ſooner came to the throne, than he re-eſtabliſhed that conſtitution, of which his mother had deprived the Milaneſe; the States and the Senate were reſtored; and alſo, the right of the States to appoint, what is called an orator to Vienna; in fact, an ambaſſador paid by themſeves, to lay their repreſentations before the court, without the intervention of a governor; a right which cannot be deemed unimportant. So that at preſent, the government of Milan, though by no means, ſuch as can meet our ideas of freedom, is yet a kind of limited monarchy; for aſſuredly, that government which does not poſſeſs the power of taxation, muſt be eſteemed ſuch.

Count Firmian, while prime miniſter for the Milaneſe, was the author of a law, which, if it could be adopted in England, would be worth an hundred millions to us. It obliges all communities, &c. that poſſeſs waſte or uncultivated lands, to ſell them to any one that offers a price, in order to cultivate them; but they have the neceſſary liberty of publiſhing the price offered, and receiving propoſals of a better; a fair auction takes place, and the lands become cultivated. Such poſſeſſors of waſtes, are even obliged to let them at an annual rent *for ever*, by the ſame proceſs, if any offer of rent is made to them, be it as low as poſſible. And the effect of this excellent law, has been the cultivation of many waſtes, but not all; for, on returning from Mozzata to Milan, I paſſed a very extenſive one, highly capable of profitable cultivation.

VENICE.

The celebrated government of this republic, is certainly the moſt reſpectable that exiſts in the world, in point of *duration*; ſince it has laſted without any material change, and without its capital being attacked for 1300 years,

* One of them now living, *Count* de Crepy (what a plague have ſuch fellows to do with titles, unleſs to be written on the gallows on which they are hanged?) has between 20 and 30,000 *zecchini* a year in land. He was originally a poor boy, that ſold cloth on a mule at Bergamo: one of his commis made 100,000 *zecchini*.

while

while all the reſt of Europe, and of Aſia, has been ſubject to innumerable revolutions, and the bloodieſt wars and maſſacres, even in the very ſeat of empire. That duration is one of the firſt objects of a government, can never admit a doubt; ſince all other merit, however it may approach human perfection, is nothing without this. A well organized ariſtocracy, in which the greateſt maſs of the wiſdom of the community, ſhall be found in a ſenate, ſeems, from the vaſt and important experiment of this celebrated republic, to be eſſentially neceſſary to ſecure the duration of any government. But the duration of an evil, becomes a miſchief inſtead of an advantage; and that tyranny, which is ſo politically organized, as to promiſe an immenſe duration, is but the more juſtly to be abominated. The knowledge which will reſult from long experience, may probably teach mankind the right compoſition of a mingled form, in which the ariſtocratic portion will give duration and firmneſs; the democracy, freedom; and the conformation of executive power, energy and execution. Perhaps, the Britiſh government approaches the neareſt to ſuch a deſcription.

The reputation of the Venetian government, is now its only ſupport, a reputation which it does not at preſent merit in the ſmalleſt degree:—but as this idea is directly contrary to the accounts given by many travellers, I feel it neceſſary to premiſe, that I ſhould think it merely trifling with the reader, to travel to Venice, in order to write diſſertations in my own name, on the government of that republic; I do no more than hold the pen to report the opinions of Italians, on whoſe judgment I have every reaſon to rely; and, as exaggerated panegyrics have been publiſhed of the government of this State, it is fair to hear what may be urged on the other ſide of the queſtion.

For twenty years paſt, there has been, in the republic, little more than a multiplication of abuſes, ſo that almoſt every circumſtance, which has been condemned in the arbitrary governments of Europe, is now to be found in that of Venice. And as an inſtance of the principles on which they govern their provinces, that of Iſtria was quoted. 1. To preſerve the woods (which belong to the Prince), they prevent the people from turning any cattle into them; and if any man cut a tree, he is infallibly ſent to the gallies, which has driven numbers out of that part of the country, where the woods are ſituated. 2. There are great opportunities of making ſalt, and the pans might be numerous, but it is a monopoly held by the State; they purchaſe a certain quantity, at 10*ſ.* French, per quintal, and if more than the ſpecified quantity be made, it is lodged in their magazines on credit; and it may be two, three, or four years before the maker of it be paid. 3. Oil is a monopoly of the city of Venice; none can be ſold but through that city; by which tranſit, an opportunity is taken to levy two ducats (each 4 liv. of France) per barrel, of 100 lb. and

five more *entrée* into Venice. 4. The coaſt abounds remarkably with fiſh, which are taken in almoſt any quantity; ſalt is on the ſpot, yet no uſe can be made of it, but by contraband, except for Venice ſingly. Thus a great trade in barrelled fiſh is foregone, in order to make a whole province beaſts of burthen to a ſingle city. 5. The heavy tax of a *ſtajo* of wheat, 130lb. is laid on each head of a family, payable to the Venetian bailiff.

The practical reſult of ſuch principles of government, confirms whatever condemnation theory could pronounce. Every part of the province, except a diſtrict that is more favoured than the reſt in ſoil and climate, is depopulated; and ſo much are the woods preferred to the people, that parts, which once abounded with men, are become deſerts; and the ſmall population remaining in other parts, is every day diminiſhing. Dalmatia is in a yet worſe ſtate; for the greater part is a real deſert:—in 1781 and 1782, no leſs than 12,000 families emigrated from the province. As I have not travelled in theſe provinces, I do no more than report the account given by well-informed Italians, though not reſiding in the territories of the republic. Before the government of this ſtern ariſtocracy is made the ſubject of exaggerated praiſe, let facts counter to theſe, be made the foundation.——But farther,

In the immediate operations of their government *at home*, the ſame weakneſs is found. Their poverty has increaſed with their revenue; they have raiſed the leaſes of the farmers general (for that odious collection is the mode they purſue) conſiderably: and near twenty years ago, they ſeized many of the poſſeſſions of the monks—that act for which the National Aſſembly of France has been condemned; but which, in the hands of numerous other governments, has either paſſed without animadverſion, or has been commended. They did the ſame with the eſtates of ſome of the hoſpitals; but though ſuch exertions have raiſed their revenue to 6,100,000 ducats, (1,054,000l.) yet they have found their affairs in ſuch a ſituation, from bad management, that they have been obliged to ſell the offices, which were in better times granted to merit; and committed a ſort of bankruptcy, by reducing the intereſt of their old debts, from 5 to 3 per cent. Their credit is at ſo low an ebb, that, no longer ago than laſt June, they opened a ſubſcription to fund 700,000 ducats; and, notwithſtanding every art, could procure no more than about 300,000. Inſtead of their famous chain, which marked the wiſdom of their œconomy, their treaſury is without a ſol: and, to ſhew the apprehenſions they have of provinces under their dominion throwing off their yoke, if they are at a ſmall diſtance from the ſeat of government, the State makes a diſtinction in the political treatment of the Bergamaſque and Breſcian territories, from thoſe nearer to Venice, in reſpect to privileges, puniſhments, taxes, &c.

No

No favourable feature of their government; and which ſhews that they think the people made for their city.

Perhaps, in the ſyſtem of their finances, there is no circumſtance that ſhews a decline of the real principles of their government, more than that of putting contraventions of the tobacco farm under the controul of the State inquiſitors; which muſt have been done ſince M. de la Lande's ſecond edition, as he mentions expreſsly their having nothing to do with the finances*. A conduct utterly ridiculous, in a State that once conducted itſelf with ſo much dignity.

Even in the delicate article of imparting the privileges of the ariſtocracy, to the nobility of Terra Firma, by whom they are in general deteſted, they have exhibited no doubtful ſymptoms of weakneſs, and want of policy. Reputation has been for many years the great ſupport of their government; to manifeſt therefore ſuch a want of policy, as ſtrikes the moſt careleſs eye, is to ſuffer in the tendereſt point. In 1774, they offered, gratis, a ſeat in the *conſiglio maggiore*, to forty families, their ſubjects, who poſſeſſed 1200l. a year in land; provided there were four degrees of nobility, on the ſide of both huſband and wife. Great numbers of families were eligible, but not ten in the whole would agree to the propoſal. To offer a ſhare in the legiſlature of ſo celebrated a republic, which in paſt periods would have been ſought for with ſingular avidity, and to ſuffer the mortification of a refuſal, was exhibiting a ſign of internal weakneſs, and of want of judgment, adapted to reduce the reputation of their policy to nothing. The motives for the refuſal are obvious: theſe families muſt of courſe remove to Venice; that is, to go from a city where they were old and reſpected, to another where they would be new and deſpiſed. Their eſtates alſo would not only ſuffer from their abſence, but would be ſubject to new entails, and held by other tenures; no mortgage of them is allowable; and they are ſubject to peculiar laws of inheritance. In addition to theſe diſadvantages, they are cut off from ſerving foreign princes; whereas the nobility of Terra Firma engage in ſuch ſervices. The Emperor's ambaſſador at Turin, is a ſubject of Venice; and one of the Pellegrini family, a field marſhal in his army. Nor did the noblemen of Terra Firma refuſe the favour, for theſe reaſons alone; they dreaded the power which the State exerts over the noble Venetians, in ſending them upon expenſive embaſſies, in which they muſt ſpend the whole of their income, and, if that be not ſufficient, contract debts to ſupport themſelves; for theſe reaſons, and many others mentioned to me, which I did not equally underſtand, the government might have known before they made the offer, that it would ſubject them to the diſgrace of a refuſal. Long before the period in queſtion, conſiderable additions had been

* *Voyage en Italie*, tom. vii. p. 7.

made to nobles of Venice, from the Terra Firma, but theſe honours were paid for; the price 17,000l. ſterling; 7,000l. in caſh, and 10,000l. lent to the State in perpetuity.

It is a curious circumſtance, which marks undeceivingly the general features of the Venetian government, that about forty years ago, as well as at other periods, there were negociations between the Court of Vienna and the Venetians, relative to an exchange of territory; the diſtrict of Crema was to have been given by Venice, for a part of the Ghiara d'Adda; the rumour of which, filled the people of the latter with the greateſt apprehenſions; they felt even a terror, at the idea of being transferred to the government of Venice; knowing, certainly, from their vicinity, that the change would be for the worſe. This aſcertains the comparative merit of two governments, that one is leſs bad than the other.

Upon the whole it may be remarked, that the wiſdom of the Venetian government flows entirely from its interior organization, which is admirably framed; but abuſes, in ſpite of this, have multiplied ſo much, that the firſt real ſhock that happens will overturn it. The fall of a goverment, however, which has ſubſiſted with great reputation ſo much longer than any other exiſting at preſent, ought to be eſteemed a great political loſs, ſince the eſtabliſhment of new ſyſtems is not at preſent wanted for the benefit of mankind, ſo much as the improvement of old ones; and if by any amelioration of the Venetian ariſtocracy, the benefit of the common people could be better ſecured, it might yet laſt in enlightened ages, as well as through thoſe of darkneſs and ignorance.

BOLOGNA.

The government of the church, though in ſo many reſpects conſidered as one of the worſt in Europe, ought not to be condemned too generally, for ſome diſcrimination ſhould be uſed. Thus, in point of taxation, there are few countries that have leſs to complain of than this, as I have ſhewn in the proper place; and another circumſtance was mentioned to me here, which proves that it is not the Pope's fault that it is not better—his Holineſs was ready to aboliſh all fêtes, confining them to Sunday; and made the offer to the Senate of Bologna, if they would apply to him for the purpoſe; great debates enſued in that body, and it was determined not to make the application.

TUSCANY.

The government of the Grand Duke is, as every one knows, abſolute; it admits therefore of no other diſcrimination, than what reſults from the perſonal character

character of the Prince. The circumſtances I noted, during my reſidence at Florence, will ſhew that few ſovereigns have deſerved better of their ſubjects than Leopold: the details, however, which I ſhall enter into, will be very ſlight, not that the ſubject wants importance, but becauſe many other books contain large accounts of this period; and eſpecially the collection of his* laws, of which I wiſh to ſee a complete Engliſh tranſlation, for the uſe of our legiſlators. The encouragements which this wiſe and benevolent ſovereign has given to his ſubjects, are of various deſcriptions; to claſs them with any degree of regularity, would be to abridge that collection; a few, that bear more or leſs upon agriculture, I ſhall mention.

I. He has aboliſhed tythes, which will be explained more at large, under the proper head.

II. He has eſtabliſhed an abſolute freedom in the trade of corn.

III. He has for many years contributed one-fourth part of the expence of buildings, in the Val de Nievole, and the lower province of Siena.

IV. He has this year made the culture of tobacco free, and engaged to buy all that is raiſed at 16*ſ.* the pound.

V. He has extinguiſhed the national debt of Tuſcany, which had exiſted from the time of the republic; for it deſerves noting (in order for ſome future hiſtorian of the † modern ages, to mark the fact that the richeſt people run in debt the moſt) that the republic of Florence was one of the moſt commercial and rich in Europe. Two evils attended this debt, which the Grand Duke bent his operations to remove; *firſt*, three or four millions of it were due to foreigners, particularly to the Genoeſe, which carried much money out of Tuſcany; and, *ſecondly*, there were diſtinct bureaus of collection and payment, for tranſacting the buſineſs of theſe debts. To remedy this double miſchief, he firſt bought up all that part of the debt due to ſtrangers, which he effected by the operation of a ſteady and wiſe œconomy; he then called on the Tuſcan creditors to liquidate their debts, in the ratio of 3 per cent.; thoſe who had money did it; and to thoſe who had none, he lent the neceſſary ſums: by this method, the diſtinct receipt and payment were aboliſhed; the accounts were melted into the land-tax; and a number of reve-

* *Collezione di Leggi*, 8vo. 10 vols.—Siena.

† There is no work in the whole range of literature, more wanted than a Modern Hiſtory of Europe, written philoſophically; that is to ſay, with due attention to the progreſs of arts, ſciences, and government; and with none paid to wars, battles, ſieges, intrigues, generals, heroes, and cut-throats, more than briefly to condemn them: in ſuch a work, the circumſtance of the richeſt countries in Europe, having plunged themſelves the deepeſt and moſt ruinouſly in debts, to ſupport wars of commerce and ambition, ſhould be particularly explained and condemned.

nue

nue officers, &c. were reformed: nine or ten millions of crowns were thus extinguiſhed.

VI. He has aboliſhed all rights of commonage throughout his dominions, and given the powers of an univerſal incloſure.

VII. He has ſold a conſiderable portion of the eſtates belonging to the ſovereign, which has occaſioned a great increaſe of cultivation, and the ſettlement in his dominions of many rich foreigners *.

VIII. In levying taxes, he has aboliſhed all the diſtinctions of noble, ignoble, and eccleſiaſtical tenures; and all exemptions are ſet aſide.

IX. He has built a magnificent lazaretto at Leghorn, and ſpent three millions on roads; but it would be entering too much into detail to ſpecify his works of this ſort; they are numerous.

The effects of ſuch an enlightened ſyſtem of government have been great; general aſſertions will not deſcribe them ſo ſatisfactorily to a reader as particular inſtances. Sig. Paoletti, who has been *curé* of the pariſh of Villamagna forty-three years, aſſured me, that the forty farms, of which it conſiſts, have riſen in their value full 2000 *ſcudi* each in that time, which is about *cent. per cent.* of their former value; this great improvement has been chiefly wrought of late years, and eſpecially in the laſt ten. It highly merits notice, that the countries in Europe, whoſe whole attention has been given excluſively to their commerce and manufactures, and particularly England, where the commercial ſyſtem has been more relied on than in any other country, have experienced nothing equal to this caſe of Tuſcany, the government of which has proceeded on a principle directly contrary, and given its encouragement *immediately* to agriculture, and *circuitouſly* to manufactures. In the tours I made through England, twenty years ago, I found land ſelling on an average at 32½ years purchaſe; it ſells at preſent at no more than 28. While Tuſcany therefore has been adding immenſely to the money value of her ſoil, without trade and without manufactures (comparatively ſpeaking to thoſe of England), we have in the ſame period, with an immenſe increaſe of trade, been loſing in our land. This fact, which is unqueſtionably true, is a curious circumſtance for political analyſis: it proves ſomething wrong in our ſyſtem. Population in Villamagna has augmented about a ſeventh, in the ſame period.

I ſhall not quit this article, without giving the preference decidedly to Leopold, Grand Duke of Tuſcany, as the wiſeſt of the princes, whoſe power admits a compariſon in the age in which he lives: thoſe are mean ſpirits, or

* By the general regulations for the diſtrict of Florence, of May 23, 1774, cap. 35. it is ordered, that all the landed property of the communities, kept in adminiſtration, or let, ſhall be ſold or let on long leaſe. *Paoletti*, p. 85.

ſomething

ſomething worſe, that will heſitate a moment between him and Frederic of Pruſſia: a ſovereign no more to be compared to him, than the deſtroyers and tyrants of mankind are to be placed in competition with their greateſt benefactors*.

MODENA.

In an age in which the ſovereigns of Europe are incumbered, and ſome of them ruined by debts, a contrary conduct deſerves conſiderable attention. The Duke of Modena, for ten years paſt, has practiſed a very wiſe œconomy: he is ſuppoſed, on good authority, to have ſaved about a million of *zecchins*, (475,000l.) and he continues to ſave in the ſame proportion. This is a very ſingular circumſtance, and the effect of it is obſervable; for I was aſſured at Modena, that this treaſure was much greater than the whole circulating currency of the Dutchy; and they ſpoke of it as a very miſchievous thing, to withdraw from circulation and *uſe*, ſo conſiderable a ſum, occaſioning prices generally to riſe, and every thing to be dear. By repeated inquiries, I found this dearneſs was nothing more than what is found in the States around, which have all experienced, more or leſs, a conſiderable riſe of prices in ten years. But how could withdrawing money from circulation raiſe prices? It ought, on the contrary, in a country that has no paper-money, to lower them. That this effect did not follow, we may eaſily conclude, from theſe complaints. But the very perſons who complained of this treaſure could not aſſert, that money was more wanted in the Dutchy than before it was begun to be ſaved. They even gave a proof to the contrary, by affirming the rate of intereſt to be at preſent 4½ per cent. only. Upon the whole, the effect is evidently harmleſs; and it is a moſt curious fact in politics, that a government can gradually draw from circulation a ſum that in ten years exceeded the current coin of the State, without cauſing an apparent deficiency in the currency, or any inconveniency whatever. Concluſions of infinite importance are to be drawn from ſuch a fact; it ſeems to prove, that the general modern policy of contracting public debts, is abſurd and ruinous in the extreme; as ſaving in the time of peace, is clearly without any of thoſe inconveniences, which were once ſuppoſed to attend it; and by means of forming a treaſure, a nation doubles her nominal wealth, that ſort of wealth, which is real or imaginary, according to the uſe that is made of it. The reputation, preventing attacks, is perhaps the greateſt of all. How

* The conduct of this Prince in his new ſituation, to which he acceded at a moſt critical and dangerous moment, has been worthy of his preceding reputation, and has ſet a ſtamp on the rank in which I have ſuppoſed him. A few years more added to the life of Joſeph, would have ſhivered the Auſtrian monarchy to nothing; Leopold has, by his wiſe and prudent management, every where preſerved it.

contrary

I ſhall not quit the ſubject of Italian governments, without remarking, that ſuch deſerts as Sardinia, under a deſpotic monarch, and Iſtria under a deſpotic ariſtocracy, are to be claſſed among political leſſons. The tendency and reſult of ſuch caſes, are ſufficient to ſhew the principles of government: the leaders ſhould ſpeedily correct the neglect of ſuch ſyſtems. When people are well governed, THINGS CANNOT BE THUS. The wiſdom applicable to the preſent moment, is to watch the colour and ſpirit of the age; to compound; and to yield, where yielding is rational.

Working oxen,	97,753
Cows in calf,	13,099
Calves, *ammanſite*,	8,080
Horſes and mares,	66,334
Hogs,	152,471
Oxen and calves, *rudi*,	58,770
Cows and cow-calves, *rudi*,	166,468
Goats,	378,201
He-goats,	42,597
Sheep,	768,250
Rams and wethers *,	143,502
	1,895,525

The miſerable ſtate of this iſland, will beſt appear from calculating the number of acres. Templeman tells us, that it contains 6,600 ſquare miles. England he makes 49,450; the real contents of which, in acres, are 46,915,933; Sardinia, in the ſame ratio, contains 6,261,782: the number of goats and ſheep in the iſland, is 1,332,550; there is, therefore, about one ſheep or goat to every five acres. Without viewing the iſland, I will venture to pronounce, that it would, without cultivation, ſupport a ſheep per acre; above ſix millions; and reckoning the fleeces at 3s. 4d. each, the wool only would produce one million ſterling a year. It is ſaid, the King of Sardinia offered to ſell the iſland, to the Empreſs of Ruſſia, for a million ſterling. The purchaſer of it would have a noble eſtate at twice that price, ſeeing the immenſe improvements of which it is capable. The fee ſimple of moſt of the eſtates are to be purchaſed at a very eaſy rate, as well as the ſovereignty. The climate would admit of wool, as fine as the Spaniſh; if it were made into an immenſe ſheep-walk, with culture only proportioned to their winter ſupport, it would yield an exportable produce of full two millions ſterling annually.

Gemelli mentions the iſland being capable of producing as fine wool as Spain; they rear them only for ſupplying their tables with lambs and cheeſe; and to have ſkins for dreſſing the people; and no attention whatever is paid to the quality of the wool, which is good for nothing, but to make the Sardinian ſerges.

* *Gemelli*, tom. ii. p. 148.

ACADEMIES.

ACADEMIES.

There is an agrarian ſociety at Turin, which has publiſhed four volumes of papers: a patriotic ſociety at Milan, which has publiſhed two volumes; neither of theſe ſocieties hath any land for trying experiments. At Bergamo, Breſcia, and Verona, there are alſo ſocieties,—without land. At Vicenza, the republic has given four *campi* for the purpoſe of experiments. At Padua, I viewed the experimental garden, of about a dozen acres, under the direction of Sig. Pietro Arduino; the expence of which is alſo paid by the State. At Florence, a ſimilar one, under the conduct of Sig. Zucchino; this was in good order.

Venice.

Perhaps no country ever had a wiſer plan of conduct than the Venetians, in appointing a gentleman, ſuppoſed, from his writings, to be well ſkilled in agriculture (Sig. Arduino), to travel over all their dominions, to make inquiries into the ſtate of agriculture; its deficiencies, and practicable improvements; and the idea was, that the academies of agriculture, in all the great towns of the republic, would have orders to take ſuch ſteps to effect the improvements, as would moſt conduce to national proſperity. The plan was admirable; all, however, depends on the execution; as far as the academies are concerned, I ſhould expect it to fail, for none of them are eſtabliſhed upon principles, that will allow us to ſuppoſe their members ſkilled in *practical* huſbandry; and, without this, their ideas and their experiments would of courſe be viſionary.

It will not, perhaps, be improper to remark, under this head, that there is at Venice, an inſtitution appointed by the State, which, though not an academy, has much the ſame object, but with more authority, called the *Beni Inculti*. Their origin was about 1556, and in 1768 they added the *Deputati di Agricoltura*. I was informed, that they had once great power, and did much good, but that now there lies an appeal from their tribunal, to the council of forty, which is attended with a conſiderable expence, and has done miſchief.

SECT. II.—OF TAXATION.

PIEDMONT.—*Chentale.*

The land-tax, near the town, is 6 liv. or 7 liv. per *giornata*, per annum, on ſuch land as ſells at 800 liv. to 1000 liv.; which may be called about one-ſixth of the rent, ſuppoſing land to pay 5 per cent. The landlord, of courſe, pays his own capitation of 1 liv. for himſelf, and every one in family: and the tenant pays as much for his family, being more than ſeven years old. But what is abundantly worſe, he pays 25*ſ.* a head for each cow, and 50*ſ.* for each ox. Salt is a monopoly: the ratio per head, is 8 lb. for every one in family, after five years old; 4 lb. for each ox and cow; and 1 lb. for each ſheep and goat; and 1 lb. more per cow, for thoſe that give milk: the price, 4*ſ.* the pound.

Turin.

No capitation in Turin. The *entrées* are 8*ſ.* the *brenta*, 50 bottles of wine; 4 *den.* per pound, meat. Salt, 4*ſ.* the pound. Hay, 1*ſ.* the *rubbio*, to the Hotel de Ville, for lighting the city. No taxes except the *entrées*. The land-tax in common, is 4 liv. the *giornata*. Salt, 8 lb. each ox or cow, and 4 lb. each goat, ſheep, or calf, at 4*ſ.*; and if they want more, the reſt 2*ſ.* the pound; alſo 8 lb. per head of the family. Capitation in the country, 1 liv. per head, for all above ſeven years.

The following is a correct Detail of the Revenue of the King of Sardinia, which in 1675 amounted only to 7,000,000 liv. (306,250l.)

	Liv.
Cuſtoms—exciſe and ſalt,	14,000,000
Land-tax, which is between 7 and 8 per cent.	6,000,000
Since 1781, the clergy their thirds of the land-tax,	500,000
Addition to the land-tax, for the Nice road,	100,000
Contribution of the Jews,	15,700
Sale of demeſne lands falling into the crown,	800,000
Fees in the courts of juſtice,	110,000
Salt in the provinces of Alexandria and Novara,	65,460
Carry forward,	21,591,160

	Liv.
Brought forward,	21,591,160
Enrollment of all public acts and contracts,	276,100
Poſt-office,	300,000
Lotteries, royal powder works, glaſs houſes, mines, ſalines, &c. about	3,000,000
Total, excluſive of the laſt article,	* 22,167,260
Sterling,	£. 1,158,813

Expenditure.

Intereſt of the public debt,	* 4,738,840
Army,	† 10,700,000
Carry forward,	15,438,840

* The following is another account:—

Sale,	3,504,233 liv.
Tobacco,	2,415,297
Dogana,	2,377,673
Carne,	1,240,230
Carta bollata,	249,103
Polveri,	215,788
Contravenzioni,	22,340
Gabella giaochi,	137,389
Reggio lotto del ſeminario,	388,487
Gran cancelleria,	162,537
Dritti inſinuazioni,	44,647
Regie poſte,	394,214
Domaniali,	442,884
Caſuali,	1,449,548
	13,044,370

Sardinia, in 1783, produced 1,318,519 liv.; the population 450,000 ſouls.

* The debt amounts to 58,000,000 liv. originally at 4, now at 3½ per cent. and the fund is above par. There are 17,000,000 of bank notes, which at firſt bore 4 per cent. then 2, and now none.

†

Guards,	1,397
Fifteen regiments of the line,	17,784
Twelve regiments of militia,	7,200
Legion,	1,718
	28,099
Invalids,	2,400
Sundries,	1,141
Infantry,	31,640
Cavalry and dragoons,	3,289
	34,929
Of which foreigners,	7,536

	Liv.
Brought forward,	15,438,840
Ordnance,	359,044
Fortifications, royal houſes, and public buildings,	1,458,998
Houſhold,	2,500,000
Collection of the revenue,	3,572,398
King's privy purſe,	711,425
	24,040,705
Sterling,	£. 1,202,035

If, as calculated, there are 2882 ſquare French leagues in the King's continental dominions, the revenue amounts to 10,920 liv. per league; and as the population is 3,000,000, it is 8 liv. 2½ *ſ.* per head. Savoy produces 2,432,137 liv. Piedmont, 11,444,578 liv.; and the provinces acquired by the treaties of Worms and Vienna, 1,972,735 liv.

MILANESE.—*Milan.*

One liv. on the manufacture of each hat; duty of 7½ *ſ.* per lb. on the export of ſilk. There are *entrées* at the gates of Milan, upon moſt commodities. Wine pays 42 *ſ.* the *brenta*, of 96 *bocali*, of 28 oz. or ſomething under a common bottle. Salt in the city, is 12 *ſ.* the pound, and 11½ *ſ.* in the country. No perſon is obliged to take more than they think proper.

Mozzata.

The land-tax throughout the Milaneſe, is laid by a *cadaſtre*, called here the *cenſimento*; there was a map and an actual ſurvey of every man's property taken parochially, and a copy of the map left with the community of every pariſh. It was finiſhed in 1760, after forty years labour, under the Empreſs Maria Thereſa. The lands were all valued, and the tax laid at 26 *deniers*; 1 *ſ.* 6 *den.* per *ecu*, of the fee ſimple. There is at Milan itſelf, as well as in the accounts of travellers, ſtrange contradictions and errors about this tax; as ſoon as I arrived, I was told, even by very ſenſible men, that it amounted to full 50 per cent. of the produce. Monſ. de la Lande, in his *Voyage en Italie*, tom. i. p. 291, 2d edit. ſays, that it is one-third of the revenue, or half the *produit net*; this is the confuſion of the *èconomiſtes*, with that jargon which ſeems to have enveloped the plaineſt objects in a miſt; for one-third of the revenue, is not half the *produit net*. Monſ. Roland de la Platerie aſſerts, that it exceeds the half of the *revenu net*; but all theſe accounts are groſs errors. The inſtruction of the commiſſaries originally, who valued the country, was to eſti-

mate

mate it below the truth; of which theſe gentlemen ſeem to have known nothing. Nor do they take into their conſideration, the improvements which have been made in near thirty years; for the *cenſimento* remains as it was, no alteration having been made in the valuation; when they talk therefore of 50 per cent. or a third, or any other proportion, they muſt of neceſſity be incorrect, for no one knows the value of the whole Dutchy at preſent; nor can tell whether the tax be the fifth or the tenth, or what real proportion it bears to the income. When I found the ſubject involved in ſuch confuſion by preceding travellers, I ſaw clearly that the way to come at truth, was to enquire in the country, and not depend on the general aſſertions ſo common in great cities. At this place (Mozzata) therefore, I analyzed the tax, and by gaining a clear comprehenſion of the value, rent, produce, and tax of 100 *pertiche*, was enabled to acquire a fair notion of the ſubject. Under the chapter of *arable products*, I have ſtated that 100 *pertiche* yield a groſs produce, in corn, wine, and ſilk, of 1836 liv.; of which the proprietor receives for his ſhare, 785 liv. This land would ſell for 128$\frac{1}{7}$ liv. per *pertica*; or 12,833 liv. for the 100. Now this 100 *pertiche*, of ſuch a rent and value, pays *cenſimento* 15$\frac{1}{2}$*ſ.* per *pertica*, or 77 liv. This tax is paid by the farmer in the above-mentioned diviſion; but if there were no tax, the landlord would receive ſo much more as his portion; add therefore the tax, 77 liv. to his receipt, 785 liv. and you have 862 liv. for the ſum which pays 77 liv.; which is 8$\frac{804}{1064}$, or 8l. 18s. per cent. or 1s. 9d. in the pound. So utterly miſtaken are the people of Milan, and the French travellers, when they talk of 50 per cent, and one-third, and one-half, the *produit net* and *revenu net!* And it is farther to be conſidered, that only half this payment of 77 liv. goes to the ſovereign; for half is retained by the communities for roads, bridges, and other parochial charges; and in ſome caſes, the partial ſupport of the *curées* is included. When this happens, the payment of 1s. 9d. in the pound, is in lieu of our land-tax, tithe, and poor-rate; three articles, which in England amount to 8s. or 10s. in the pound. But though the burthen is nothing, compared with thoſe which cruſh us in England, yet 1s. 9d. is too heavy a land-tax—it is throwing too great a burthen upon landed property, and leſſening too much the profit which ſhould ariſe from inveſting capitals in it; for it muſt be remarked, that this proportion is that of the improvements included; this 1s. 9d. might probably, twenty-five years ago, be 3s. or 3s. 6d.: it is improvements which have lowered it to 1s. 9d. at the preſent moment. Thoſe ſilent and gradual improvements, which take place from what may be termed external cauſes, from the growing proſperity, and riſe of prices in Europe in general. Were 8$\frac{1}{2}$ per cent. to be laid on new inveſtments, not one livre would be inveſted. Lands belonging to eccleſiaſtics and hoſpitals are exempted.

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It muſt be ſufficiently apparent, that this *cenſimento* muſt vary in every pariſh in the dukedom; it varies proportionably to the variation, in the accuracy of the original valuation; and to the improvements that have been made; and to many other circumſtances. As it is at preſent, the land-owners are well ſatisfied, for the tax, though too heavy, is certainly not enormous; and it gives an accuracy and ſecurity to property that is of no ſlight value; as all mutations are made in reference to the parochial map of the *cenſimento*. They very properly conſider any alteration in it, as a certain ſtep to the ruin of the Milaneſe. It has been reported, that the Emperor has entertained thoughts of having a new valuation; but the confuſion and miſchief that would flow from ſuch a ſcheme, might go much farther than the court could imagine; and might be attended with unforeſeen conſequences. In theſe opinions, they are certainly right; for of all the curſes that a country can experience, a variable land-tax is perhaps the heavieſt.

Beſide the direct land-tax of the *cenſimento*, there is a capitation that is included in the roll, like the cuſtom in England, of putting ſeveral taxes into one duplicate or aſſeſſment. On 15,173 *pertiche* of land, at Mozzata, there are three hundred and eighty-two heads payable, and one thouſand three hundred ſouls. It may be calculated, that 100 *pertiche* pay the capitation of three perſons, or 22½ liv.

Codogno.

The watered dairy lands, taken in general, ſell here at 300 liv. the *pertica*; and lets, *net* rent, at 10 liv.; the tenant paying all taxes.—The account is thus:

Rent to landlord, - - - -	10 *liv.*	0 *ſ.*
Water-tax for diſtribution, - - -	1	0
Cenſimento to the prince and the community, -	2	5
	13	5

The 1 liv. we muſt throw out, being local, and then 12 liv. 5 *ſ.* pays 2 liv. 5 *ſ.* which is $18\frac{90}{141}$ per cent. or 3s. 8d. in the pound; this is therefore doubly higher than in the poor country of Mozzata; one would ſuppoſe beforehand, that the caſe would be ſo. The improvements in the Lodizan are not modern; probably there are no other but ſuch as are common to the whole Dutchy, and which ariſe from the general proſperity of Europe, rather than from any local efforts in this diſtrict; but in much poorer countries, the improvement of waſte ſpots, and a huſbandry gradually better, are more likely to have this effect; the fact, however, is ſo; there was no ſuch difference as this, when the *cenſimento* was laid, which ſufficiently proves that the huſbandry of the poor diſtricts, has advanced much more in thirty years, than that of the rich ones, which

which, once well watered, admitted of little more. We may remark, that even here the accounts which Meſſrs. de la Lande and Roland de la Platerie have given, are groſs exaggerations.

Treviglio.

Upon 400 *pertiche* of land and ſix houſes, the *cenſimento* amounts to 430 liv. Rent, 7, 9, and 12 liv. the *pertica*, average 8 liv. or 3440 liv. about 12 per cent. or 2s. 4d. in the pound.

Upon the land-tax in general in the Milaneſe, I ſhould obſerve, before I quit that country, that in 1765 it was calculated * that the Dutchy of Milan contained 14,000,000 of *pertiche*, and that lakes, roads, &c. deducted, there remained 11,367,287, of which 5,098,758 were arable. It has been further ſtated †, that the *cenſimento* of the Dutchy, raiſed,

	liv.	*ſ.*	*den.*
For the Emperor, - - - -	5,106,004	11	9
Suppoſe as much more for the communities, -	5,106,004	11	9
	10,212,009	3	6

Eleven millions of *pertiche*, paying ten millions of livres, is about 18 *ſoldi* per *pertica* ‡.

In the *Epilogo della Scrittura Cenſuaria della Lombardia Auſtriaca*, MS. ſent by Count Wilizek, prime miniſter of the Milaneſe, to the Board of Agriculture at London, the general valuation of the territory, in the *cenſimento*, is thus ſtated:

Milano, - - -	40,139,942 *ſcudi.*
Mantova, - - -	14,487,423
Pavia, - - -	6,173,740
Cremona, - - -	15,112,042
Lodi, - - -	11,014,562
Como, - - - -	2,153,626
Value of the fee ſimple, -	89,081,337

If therefore the tax produces but about ten millions of livres, it is not more than 2 per cent. on the above capital.

* *Bilancio dello Stato di Milano preſentato a S. E. Conte di Firmian*, 12mo.

† *Delle Opere del Conte Carli*, tom. i. p. 232.

‡ Upon the taxes of the Milaneſe, it ſhould be in general noted, that every father with twelve children living, or eleven living and his wife with child of a twelfth, is exempted from all perſonal taxes; and upon all others favoured 45 per cent. that is to ſay, on all royal, provincial, municipal impoſts. *Delle Opere de S. Conte Carli*, 8vo, tom. i. p. 254.

STATE OF VENICE.—*Breſcia.*

The land-tax amounts to 1¼ liv. per *jugero*, about 7d. the Engliſh acre; but there is a tax on all products, viz. wheat and rye pays the *ſoma* or *ſacco*, equal to 2 *ſtara* of Venice, or 88 lb.; 11¼ *ſoldi* equal to 18 *ſoldi correnti*; this tax *(ſenza portata in Villa)* is about 5d. Engliſh the buſhel. Millet, maiz, &c. pays 12 *ſoldi* the *ſacco*, of or about 3½d. the Engliſh buſhel. Hay, the *carro* of 100 *peze*, pays 12*ſ.* 3⅓ *den.* or about 6d. a ton Engliſh.

Verona.

Meadows, throughout the Veroneſe State, pay a tax of hay to the cavalry; furniſhing it at a lower price than the common one. The land-tax here, 24*ſ.* for each *campo*, or about 10d. the Engliſh acre; beſides which, there are *entrées (dazio)* for municipal charges on all products, amounting to about 2 per cent. of the value; alſo others payable to the State. Hay pays 24*ſ.* the *carro:* the ſack of wheat, 10*ſ.*: of maiz, 1½*ſ.* There is a moſt miſchievous tax on cattle; a pair of oxen pays half a *zecchin* per annum; cows ſomething leſs; and ſheep alſo pay a certain tax per head.

Vicenza.

Salt is 6*ſ.* the pound: fleſh, 3*ſ.* *entrée (dazio):* a ſack of wheat, 4½*ſ.*: of flour, of 180 lb. 3 liv. 2*ſ.*: and every thing that comes in pays. Land-tax, 2 liv. the *campo:* and a poll-tax of 2 liv. a head, on all above ſeven years old.

Padua.

The land-tax, 20*ſ.* the *campo*; and 10*ſ.* or 15*ſ.* for the expences on rivers; but this tax uncertain.

Venice.

No tax on cattle in the Poleſine. The land-tax on all the Terra Firma; arable, 2 liv. the *campo*: meadow, 1 liv. 10*ſ.*: woods, 10*ſ.* The ſale of meat in the city is a monopoly, no other perſons but thoſe appointed being allowed to ſell. *Entrées* are paid on every thing that comes in; on wine it is heavy. Tobacco is a monopoly, at a heavy price, reſerved by the State throughout all the Venetian territory, producing 50,000 ducats a month, and guarded by the ſame infamous ſeverities, that are found in other deſpotic countries. Salt the ſame. Inheritances, except from a father, pay 5 per cent. on the capital; a woman pays this cruel impoſition, even upon her receipt from a father, or a huſband. Infamous tyranny! The city of Venice pays about one-ſixth of the whole revenue.

ECCLE-

ECCLESIASTICAL STATE.—*Bologna.*

Taxation, at Bologna, is one of the moſt remarkable circumſtances I met in Italy. I had often read, and had been generally given to underſtand, that the government of the church was the worſt to be found in Italy; what it may be in the Roman State, I know not, but in the Bologneſe it is amongſt the lighteſt to be found in Europe. There are four objects of taxation:—1. The Pope. 2. The municipal government of the city. 3. The ſchools in the univerſity. 4. The banks, &c. of the rivers, againſt inundations. Of all theſe, there is ſome reaſon to believe that the Pope receives the leaſt ſhare. The common land-tax is only 2 *baiocchi* the *tornatura*; this is about 2d. the Engliſh acre. Lands ſubject to inundations, pay 5 *baiocchi* more. Among the impoſts levied in the city, wine only, and a few trifles, belong to his Holineſs. Salt, fiſh, meat, cocoons (for there is a ſmall duty upon them), and grinding corn, theſe are municipal; and among the heavieſt articles of the cities expence, is the intereſt of about a million ſterling of debt. In general, the revenue of the *dogana*, or cuſtom-houſe, is applied towards ſupporting the lectures in the public ſchools, and the botanical garden. There is a light capitation, which is paid in the country, as well as in the city. Upon the whole, the amount of the taxes of every kind is ſo inconſiderable, that the weight is felt by nobody, and was eſteemed to be exceedingly light by every perſon I converſed with.

TUSCANY.—*Florence.*

Every circumſtance concerning taxation, in the dominions of the moſt enlightened Prince in Europe, muſt neceſſarily be intereſting. If the reader is at all converſant with the works of the *economiſtes*, with which France was ſo deluged ſome years ago, he will know, that when they were refuted in argument, upon the theory of a univerſal land-tax, to abſorb all others, they appealed to practice, and cited the example of Tuſcany, in which dominion their plan was executed. I was eager to know the reſult; the detail I ſhall give, imperfect as it is, will ſhew on what ſort of foundations thoſe gentlemen built, when they quitted the fields of ſpeculation and idea. I was not idle in making inquiries; but the Grand Duke has made ſo many changes, no year paſſing without ſome, and all of them wiſe and benevolent, that to attain an accurate knowledge is not ſo eaſy a buſineſs as ſome perſons may be inclined to think. The following particulars I offer, as little more than hints to inſtigate other travellers, whoſe longer reſidence gives them better opportunities, to examine a ſubject of ſo much importance to the bottom.

The eſtimation on which the preſent land-tax is collected is ſo old as 1394; of courſe it can bear no proportion with the value or with the produce of the land; whatever improvements are made, the tax remains the ſame; much of it has been bought off in payments made by proprietors, who have paid at different periods certain ſums, to be exempted forever from this tax; a ſingular circumſtance, and which marks no inconſiderable degree of confidence in the government. That part of this tax which is paid to the communities for roads, &c. is not thus redeemable; and, without any breach of faith, the tax has received additions; it amounts to more than one-tenth of the net rent. A capitation from 1½ liv. to 4 liv. per head (the livre is 8½d. Engliſh). Every body pays this tax in the country, except children under three years of age; and all towns, except Florence, Piſa, Siena, and Leghorn, which are exempted, becauſe they pay *entrées*. Nothing is paid on cattle. Butchers in the country pay a tax of 1 *ſ.* per lb. (ſomething under ½d. per lb. Engliſh); in a diſtrict of ſeven miles long by four or five broad, the butcher pays 500 *ſcudi* per annum to the prince; as this tax implies a monopoly, it is ſo far a miſchievous one; and even a countryman cannot kill his own hog without paying 5 liv. or 6 liv. if ſold. Bakers pay none. Cuſtoms on imports, and ſome on exports, are paid at all the ports and frontiers; and the *entrées* at the above-mentioned towns are on moſt kinds of merchandize and objects of conſumption. Houſes pay a *dixme* on their rents. Stamped paper is neceſſary for many tranſactions. The transfer of land and houſes, by ſale or collateral ſucceſſion, pays 7 per cent. and legacies of money and marriage portions the ſame—a very heavy and impolitic tax. There is a *gabelle* upon ſalt, which however the Grand Duke ſunk ſix months ago from 4 to 2 *gras*; he, at the ſame time, made Empoly the only emporium, but as that occaſioned much expence of carriage, he augmented the land-tax enough to pay the loſs, by ſelling it to the poor only at 2 *gras*; the rich pay the ſame, but with the addition of carriage. Tobacco was alſo a revenue, and, with ſalt, paid 1 liv. per head on all the population of the Dutchy, or one million. The *entrées* above-mentioned are not inconſiderable; a calf pays 6 liv.; a hog, 5 liv. per 100 lb.; grain nothing; flour, 10 *ſoldi* (there are 20 *ſoldi* in 1 liv.); beans, 2 *ſ.*; a load of hay, of 3000 lb. 4 liv.; of ſtraw, under 2000 lb. 2 liv. Houſes are alſo ſubjected to an annual tax; Florence pays 22,000 *ſcudi* a year to it: it may be ſuppoſed to be levied pretty ſtrictly, as the Grand Duke ordered all his palaces, the famous gallery, &c. to be valued, and he pays for them to the communities. What a wiſe and refined policy! and how contrary to the exemptions known in England! When the capitation was increaſed in France, in a bad period, Louis XIV. ordered the Dauphin himſelf, and all the princes of the blood, to be rated to it, that the nobility might not claim exemptions. Lotteries, to my great ſurprize, I found eſtabliſhed here. The

domains

domains of the ſovereign were conſiderable. It was always a part of the policy of Leopold, to ſell all the farms that could be diſpoſed of advantageouſly; he ſold many; but there are yet many not diſpoſed of. I found it a queſtion at Florence, whether this were good policy or not? A gentleman of conſiderable ability contended againſt theſe ſales, judging the poſſeſſion of land to be a good mode of raiſing a public revenue. The opinion I think ill founded; if it be carried to any extent (and if incapable of being ſo, there is an end of the queſtion), the loſs by ſuch poſſeſſions muſt be great: every eſtate is ill managed, and unprofitably, and uſually badly cultivated, in proportion to the extent.—And when this evil extends to ſuch immenſe poſſeſſions, as are neceſſary to conſtitute a public revenue, the inquiry is decided in a moment; and it muſt on all hands be agreed, that there cannot be a more expenſive mode of ſupporting the ſovereign.

From the preceding catalogue of taxes, which is very far from being complete, it may eaſily be concluded, that Monſ. de la Lande was not perfectly accurate in ſaying, "Le projet du gouvernement eſt de réduire toutes les taxes dans la Toſcane à un impôt unique, qui ſe percevra ſur le produit net des terres." This is the old aſſertion of the *economiſtes*; but if it be the project of government, it is executed in a manner not at all analogous to ſuch a ſyſtem; for there is hardly a tax to be met with in Europe, which is not to be found in Tuſcany. I was told, however, that the Grand Duke had formed an opinion, that ſuch a ſcheme would be beneficial if executed; but from his conduct, after a reign of twenty years, it is evident that his good ſenſe convinced him that ſuch a plan, whether good or bad in theory, is abſolutely impracticable. He may have made it a ſubject of converſation; but he was abundantly too prudent to venture on ſo dangerous, and what would prove ſo miſchievous an experiment.

The Grand Duke gave to all the communities, the power of taxation for roads, bridges, public ſchools, reparations of public buildings, ſalaries of ſchool-maſters, &c. Among the long liſt of taxes, however, there are no exciſes on manufactures, ſuch as leather, paper, &c.

The whole revenue of the Grand Duke may be eſtimated at one million of *ſcudi*, (5s. 8d. each), paid by about a million of ſouls, ſpread over a thouſand ſquare miles of territory; or 283,333l.: this is the received opinion at Florence; but there are reaſons for believing it under the truth, and that, if every kind of revenue whatever were fairly brought to account, it would amount to 400,000l. a year. At this ſum the Tuſcans muſt be conſidered amongſt the lighteſt taxed people in Europe; for they pay but 8s. a head. The people of England pay ſix times as much.

MODENA.

MODENA.

The common calculation in the Modeneſe is, that all taxes whatever equal one-fifth of the groſs produce of the land; as the duties are various, ſuch calculations muſt neceſſarily be liable to a good deal of error. In the *cenſimento*, or *cadaſtre* of the Dutchy, eſtates are valued at the half of their real worth, and the tax is laid at 1 per cent. annual payment of their fee ſimple; this amounts to 6s. in the pound land-tax; but it may be ſuppoſed that the real payment does not amount to any thing ſo enormous as this. It appears by the *cenſimento*, that in the plain, there are 67,378 pieces of land, and 738,809 *biolca*. The total revenue of Modena at preſent amounts to 300,000 *zecchini*, (142,000l.); 200,000 of which go to the Duke's treaſure, and 100,000 for rivers, roads, bridges, communities, &c. Among the taxes, many are heavy, and complained of; beſide the land-tax above-mentioned, the general farms amount to 55,000 *zecchini*: all corn muſt be ground at the Duke's mills, and 3 *pauls* paid for each ſack of 300 lb. of 12 oz. There is a *gabelle* on ſalt; it ſells, white, at 22 *bol.* the pound; black, 8 *bol.* Snuff is 1 *paul* the pound. They have ſtamped paper for many tranſactions. Every horſe pays 20 *bol.*; each ox, 10 *bol.* Sheep and hogs, 4 *bol.*: and if any perſon be abſent from the State for the term of a year, he pays an abſentee tax. *Entrées* are paid by every thing that comes into the city; a load of wood, 20 *bol.*; a ſack of wheat, 3 *bol.*; a load of hay, 20 *bol.*; of faggots, 20 *bol.* All meat, 4 *bol.* the pound. Wine, 14 liv. the meaſure, of 12 *poids*, each 25 lb. of 12 oz. Coffee, $\frac{2}{3}$ *paul* per lb. The ſale, &c. of land, pays 5 per cent.

PARMA.

The revenues of this dukedom are two-thirds of thoſe of Modena. The land-tax is 50*ſ.* the *biolca*, (about 9d. an acre). The peaſants pay a capitation; this varies, if they are enrolled, or not as ſoldiers. A man pays 18 liv. (each 2¼d.) per annum, if not a ſoldier, but 3¼ liv. or 4 liv. if enrolled. A woman, not the wife of a ſoldier, 15 liv. Theſe ſoldiers, or rather militia-men, pay alſo 24*ſ.* a month, as an exemption from ſervice. He is enrolled for twenty-five years, after which he has the ſame advantage. He pays alſo but half for his ſalt, 6*ſ.* only the pound; others 12*ſ.* A metayer, who is a ſoldier, pays all ſorts of taxes, about 60 liv.

SECT.

SECT. III.—OF TITHE AND CHURCH LANDS.

PIEDMONT.

Throughout this principality, tithe is an object of no account. I made inquiries concerning it every where: the greateſt part of the lands pay none; and upon the reſt it is ſo light, as not to amount to more than from a twentieth to a fiftieth of the produce *.

MILANESE.

In the country from Milan to Pavia, no tithe of any kind, but the *curées* are ſupported by foundations. In the village where I made inquiries into the dairy management,—the *curée* has 21 *ſtara* of rice, 12 *ſtara* of rye, 4 *ſtara* of wheat; 300 lb. of the beſt hay from one large farm; and he has ſome other little ſtipends in nature; the amount ſmall, and never paid as a tithe.

At Mozzata, the tithes, as every where elſe, are ſo low as to be no object; grain pays, but not on all land; it is confined to the lands *antiently in culture* †; for even the anceſtors of theſe people were much too wiſe, to allow the church to tax them in ſuch a ſpirit, as to take tithes of new improvements. Never did ſuch a meaſure enter their heads or hearts! The titheable lands are ſmall diſtricts; are near to the villages that have been in cultivation many centuries; and in ſome of theſe, tithe is not taken on all ſorts of corn; only on thoſe ſorts antiently cultivated. The variations in this reſpect are many; but on whatever it is taken, it never exceeds a ſixteenth, uſually from one-ſeventeenth to one-twentieth; and of ſuch as are levied, the whole does not belong to the *curée*, not more perhaps than one-fourth; one-half to the canons of ſome diſtant church, to which the whole probably once belonged; and one-fourth ſold off to ſome lay-lord, with a ſtipulation to repair the church. The variations are ſo great, that no general rule holds; but they are every where ſo light, that no complaints are heard of them.

The church lands ſeized by the late Emperor in the Milaneſe, were of immenſe value. From Pavia to Plaiſance, all was in the hands of the monks; and the Count de Belgioſo has hired thirty-ſix dairy farms of the Emperor, by

* Tithe in Sardinia is heavy. They pay one-tenth of the corn, and one-ninth of that one-tenth for threſhing, and one-fifth of the one-tenth for carriage.—*Riſiorimente della Sardegna*, tom. i. p. 146.

† A remarkable paſſage in Giulini deſerves noting here; under the year 1147, he gives *finalemente ſi prohibiſce a ciaſcheduno eſſigere le decima dai terreni di nuovo coltivati*, tom. v. p. 459.

which

which he makes a profit of 50,000 liv. a year. The revenue that was ſeized, in the city of Milan only, amounted to above 5,000,000 liv.; and they ſay in that city, that in the whole Auſtrian monarchy, it amounted to 20,000,000 florins.

At Codogno, and through moſt of the Lodizan, tithe is ſo very inconſiderable, that it is not worth mentioning; the expreſſion of the gentlemen who were my informants.

State of Venice.

In the diſtrict of Verona, mulberries pay no tithe; wheat one-twelfth in ſome places, in others leſs; maiz, millet, &c. from one-fifteenth to one-thirtieth; but if for forage only, they pay none, no more than vetches, chich-peaſe, millet, &c. as it appears by a late memoir printed at Venice*. Meadows pay a light tithe, becauſe they are taxed to find hay for the cavalry at an under price. In the diſtrict of Vicenza, tithe varies from the one-tenth to the forty-firſt. About Padua, wheat alone pays the tenth: vines a trifle, at the will of the farmer: mulberries, ſheep, and cows, nothing.

Ecclesiastical State.—*Bologna.*

Tithes are ſo low throughout all the Bologneſe, that I could get no ſatisfactory account of the very ſmall payments that are yet made to the church; every one aſſured me, that they were next to nothing; but that in the Ferrareſe they are high.

Tuscany.

In many of the countries of Europe, the ſeizure of eſtates and effects of the jeſuits was a rapacious act, to the profit of the Prince or State; in Tuſcany it was converted to a more uſeful purpoſe. The Grand Duke ſet aſide theſe revenues for forming a fund, called the *Eccleſiaſtical Patrimony*, under the management of a new tribunal, that ſhould enable him gradually to aboliſh tithes. This great reform, equally beneficial to every claſs of the people, has been in execution for many years: as faſt as the preſent incumbents of the livings die, tithes are aboliſhed for ever; their ſucceſſors enter into poſſeſſion of moderate ſalaries, payable out of thoſe funds, or raiſed by an addition to the land-tax; and thus an impoſt, of all others the moſt miſchievous, is ſpeedily extinguiſhing, and the agriculture of Tuſcany improving in conſequence; proportionably to ſuch extinction of its former burthens. Many monaſteries have been alſo ſuppreſſed, and their revenues applied, in ſome caſes, to the ſame uſe; but this

* *Raccolto di Memorie Delle Pubbliche Accademie*, 8vo, 1789, tom. i. p. 197.

has

has not been attended with effects equally good: the lands are not equally well cultivated; nor do they yield the same revenue as formerly; for the farms of the monks were in the best order, administered by themselves, and every thing carefully attended to. This was not the case, however, with convents of women, who being obliged to employ deputies, their estates were not equally well managed.

A proposition was lately made by the court, to sell all the glebes belonging to the livings, and to add to the salaries of the *curées* in lieu of them; but at a public meeting of the Academia di Georgofili, Sig. Paoletti, a *curé* in the neighbourhood of Florence, a practical farmer, and author of some excellent treatises on the art, made a speech so pointedly against the scheme, fraught with so much good sense, and delivered with so much eloquence, that the plan was immediately dropped, and resumed no more; this was equally to the honour of Paoletti and of Leopold. When good sense is on the throne, subjects need not fear to speak it.

The lightness of the old tithes may be estimated, by the payment which forty farms at Villamagna yield to the same Sig. Paoletti, the *curé*, which is 40 *scudi* (each 5s. 8d.), and this is only for his life; to his successor nothing in this kind will be paid. Having mentioned Sig. Paoletti, and much to his honour, I must give another anecdote of him, not less to his credit; after his Sunday's sermon, it has long been his practice to offer to his audience, some instruction in agriculture; which they are at liberty to listen to, or absent themselves, as they please. For this practice, which deserved every commendation, his archbishop reproved him. He replied, that he neglected no duty by offering such instruction, and his congregation could not suffer, but might profit, and innocently too, by what they heard. A sovereign that receives so much merited praise as the great Leopold, can well afford to hear of his faults; first, why did he not reprove this prelate, for his conduct; and by so doing encourage an attention to agriculture in the clergy? secondly, why did he not reward a good farmer, and worthy priest, and excellent writer, with something better than this little rectory? Talents and merit in an inferior situation, which might be better exerted, are a reproach, not to the possessor, but to the prince.

The Grand Duke took the administration of the lands belonging to hospitals and the poor into his own hands also; but the effect of this has not, in the opinion of some persons, been equally beneficial; the poor remain as they were, but the revenue gone; this, in the diocese of Florence only, amounted, it is said, to three or four millions of *scudi*: if this be true, the mischief attending such revenues must be enormous; and taking them away, provided the *really useful* hospitals be supported, which is the case, must be beneficial. Too many and

great eſtabliſhments of this nature nurſe up idleneſs; and create, by dependency and expectation, the evils they are deſigned to cure. Poverty always abounds in proportion to ſuch funds; ſo that if the fund were doubled, the miſery it is meant to prevent would be doubled alſo. No poor in the world are found at their eaſe by means of hoſpitals, and gratuitous charities; it is an induſtry, ſo ſteady and regular, as to preclude all other dependence, that can alone place them in ſuch a ſituation, as I have endeavoured to ſhew in my remarks on France.

The patrimony of almoſt all the pariſhes in Tuſcany, conſiſts in lands aſſigned them: the rector is adminiſtrator and guardian of them; and, both by law and his oath on induction, he is ſtrictly obliged to maintain and ſupport them; and alſo to manure them, and to increaſe the produce *.

Dutchy of Modena.

No tithe here; a voluntary gift only to the *ſub-curée*. The eccleſiaſtical lands have been largely ſeized here, as well as every where elſe in Italy; but the Duke gave them to the towns, to aſſiſt them in the expence of the municipal adminiſtration.

Dutchy of Parma.

No real tithe; the payments in lieu very ſmall, and not proportioned to the crop; a farm pays a *ſtajo* of wheat, (about 88 lb. Engliſh), two parcels of raiſins, and twenty faggots, between the two *curés*.

Upon this detail of the tithe paid in Lombardy, &c. one obſervation ſtrongly impreſſes itſelf, that the patrimony of the church is, under every government in Italy, conſidered as the property of the State, and ſeized or aſſigned accordingly. It highly merits attention, that in the free countries of Holland and Switzerland, (exempt at leaſt from the deſpotiſm of a ſingle perſon), the ſame principle has been adopted; with what reaſon therefore can the *firſt* National Aſſembly of France be reproached, as guilty of a *ſingular* outrage, for doing that which every neighbour they have (England and Spain only excepted) had done before them; and which may poſſibly, in a better mode, be followed in every country in Europe? They have in Italy rid themſelves of tithes, though not half, perhaps not upon an average a third, of the burthen they amount to in England, where their levy has been carried to a

* *Paoletti Penſieri ſopra l'Agricoltura*, 8vo. Firenze, 1789. p. 50. 2d edit.

much

much greater height. If the legiſlature of that kingdom would give a due encouragement, they will remove ſuch burthens gradually, and with wiſdom. All I converſed with in Italy, on the ſubject of tithes, expreſſed amazement at the tithes we are ſubject to; and ſcarcely believed that there was a people left in Europe, who paid ſo much: obſerving, that nothing like it was to be found even in Spain itſelf.

SECT. IV.—OF MANUFACTURES AND COMMERCE.

PIEDMONT.

Two-thirds of the rice raiſed is exported: I met carts loaded with ſilk and rice on the great road to France; and demanding afterwards concerning this trade, I was informed, that the coſt of the carriage was 30*ſ.* per *rubbio*, to Lyons or Geneva, and 3 liv. to Paris.—The following are the principal exports:

	Liv.
Unwrought ſilk, - - - -	17,000,000
Damaſks, &c. - - -	500,000
Rice, - - - - -	3,500,000
Hemp, - - - -	1,500,000
Cattle, - - - - -	2,000,000
	24,500,000

Oil and wine from Nice; walnut-oil, cobalt, lead, and copper ore, add ſomething. France commonly takes 10,000,000 liv. in ſilk, and England 5,000,000 liv. of the fineſt ſort. The balance of trade is generally ſuppoſed to be about 500,000 liv. againſt Piedmont; but all ſuppoſitions of this ſort are very conjectural; ſuch a country could not long continue to pay ſuch a balance; and, conſequently, there cannot be any ſuch. By another account, wheat exported is 200,000 ſacks, at 5 *eymena*; 5000 ſacks of rice, at 3 *eymena*; hemp, 5000 quintals; and 10,000 head of oxen.

Turin.

The Engliſh woollen manufacturers having ſworn, at the bar of the Houſe of Lords, that the French camblets, made of Engliſh wool, rivalled the Engliſh camblets in the Italian markets, and even underſold them, I had previouſly

determined to make inquiries into the truth of this aſſertion. I was at Turin introduced to Sig. Vinatier, a conſiderable ſhopkeeper, who ſold both. His account of the French and Engliſh camblets was this; that the Engliſh are much better executed, better wrought, and more beautiful; but that the French are ſtrongeſt. I deſired to know which were the cheapeſt. The Engliſh, he ſaid, being much the narrower, it was a matter of calculation; but he ſuppoſed the conſumers thought the Engliſh cheapeſt, as where he ſold one French, he ſold at leaſt twenty-five Engliſh. He ſhewed me various pieces of both, and ſaid, that the above circumſtances were applicable both to ſtuffs mixed of wool and ſilk, and alſo thoſe of wool only. I aſked him then concerning cloths: he ſaid, the Engliſh ordinary cloths were much better than the French, but that the French fine cloths were better than the Engliſh. Theſe inquiries brought me acquainted with an Italian dealer, or merchant as he is called, in hardware, who informed me, that he was at Birmingham in 1786 and 1789, and that he found a ſenſible diminution of price; and that the prices of Engliſh hardware have fallen for ſome years paſt; and that, for theſe laſt three or four years, the trade in them to Italy has increaſed conſiderably. He has not only bought, but examined with care, the fine works in ſteel at Paris, but they are not equal to the Engliſh; that the French have not the art of hardening their ſteel; or if hardened of not working it; for the Engliſh goods are much harder and better poliſhed, conſequently, are not equally ſubject to ruſt.

MILANESE.

In the fifteenth century, the trade of this country was conſiderable. In 1423, the territory of Milan paid to the Venetians:

Milan, - - -	900,000 ducats.
Monza, - - -	52,000
Como, - - -	104,000
Aleſſandria, - -	52,000
Tortona and Novara, - -	104,000
Pavia, - - - -	104,000
Cremona, - - -	104,000
Bergamo, - - -	78,000
Parma, - - -	104,000
Piacenza, - - -	52,000
	1,654,000

And

And they ſent to Venice, at the ſame time, cloths to the following amount:

	Cloths.		*Ducats.*
Aleſſandria, Tortona, and Novara, at 15 ducats,	6000	-	90,000
Pavia, at 15 ducats, - - -	3000	-	45,000
Milan, at 30 ditto, - - -	4000	-	120,000
Como, at 15 ditto, - - -	12,000	-	180,000
Monza, at 15 ditto, - - -	6000	-	90,000
Breſcia, at 15 ditto, - - -	5000	-	75,000
Bergamo, at 7 ditto, - - -	10,000	-	70,000
Cremona, at 40½ ditto, - -	40,000	-	170,000
Parma, at 15 ditto, - - -	4000	-	60,000
	90,000	-	900,000
Duties and warehouſes, -	-	-	200,000
Canvas, - - -	-	-	100,000

And at the ſame time the Milaneſe took from Venice annually:

Cotton raw, 5000 *miliari*, - -	250,000 ducats.
Cotton ſpun, - - - -	30,000
Wool of Catalonia, 4000 *miliari*, -	120,000
French wool, - - - -	120,000
Gold and ſilk fabrics, - - -	250,000
Pepper, - - - -	300,000
Soap, - - - - -	250,000
Cinnamon, - - - -	64,000
Ginger, - - - -	80,000
Slaves, - - - -	30,000
Sugar, - - - - -	95,000
Materials for embroidery, - -	30,000
Dying woods, - - -	120,000
Indigo, &c. - - - -	50,000 *

The produce of ſilk amounts to 9,000,000 liv.; nineteen-twentieths of which, at leaſt, are exported.

Count Verri, in his *Storia di Milano*, mentions that the Milaneſe, only ſixty miles by fifty, feeds 1,130,000 inhabitants; and exports to the amount of 1,350,000 *zecchini* †, viz. ſilk, 1,000,000; cheeſe and flax, more than 200,000; corn, 150,000 (the *zecchini* being 9s. 6d. the ſum of 1,350,000 equals 641,200l.)

* *Giulini*, vol. xii. p. 362. † *Verri*, tom. i. p. 236.

But

But this is changed much, for the export of cheeſe alone is calculated now at 9,200,000 liv. which is above 306,000l. ſterling.

Bergamo.

The woollen manufacture at this place is of great antiquity, and it is yet conſiderable. Its trade in ſilk is great; they buy from Crema, Monti, Brianza, Ghiara d'Adda, and in general the confines of the Milaneſe; this has given their ſilk trade a greater reputation than it deſerves, for their commerce is more extenſive than their product. They have been known to export ſilk, to the amount of near 300,000l. ſterling a year. Here alſo is a fabric of iron and ſteel, of ſome conſideration in Italy; but none of theſe objects are in a ſtile to be intereſting to thoſe who have been at all converſant with the fabrics of England. If, however, the manufactures of Bergamo are compared with thoſe of the Milaneſe, they will be found conſiderable.

Breſcia.

This is a very buſy place; the city and the vicinity, for ſome miles, abound with many fabrics, particularly of fire-arms, cutlery, and other works of iron. They have many ſilk and oil mills; and ſome paper fabrics, that ſucceed well. But their commerce of all ſorts has declined ſo much, as not to be compared at preſent, to what it has been in former times.

Verona.

Here is a woollen fabric that ſtill maintains ſome little ground; though the declenſion it has ſuffered is very great. I was aſſured, that 20,000 manufacturers were once found in a ſingle ſtreet; this, I ſuppoſe, may be an exaggeration, but it at leaſt marks that it was once very great: now there are not 1000 in the whole city; in the time of its proſperity, they uſed chiefly their own wool, at preſent it is imported.

In the Veroneſe, they make one million of pounds of ſilk, of 12 oz.; and rice nearly to as great an amount.

STATE OF VENICE.—*Verona.*

Many years paſt, the only great import of camblets was from Saxony; but after the war of 1758, the Engliſh ones eſtabliſhed themſelves, and there is now no compariſon between the quantity of Engliſh and French; of the latter, very few, but the import of the former is conſiderable.

Vicenza.

Vicenza.

They ſell nine pieces of Engliſh camblets to one of French. A woollen manufacture was eſtabliſhed here three years ago, under the direction of Thomas Montfort, an Engliſhman. It works up their own wool, and alſo Spaniſh. Spinning a pound of fine wool, 50*ſ.* and the women earn 15*ſ.* a day; weavers, 2 liv. Count Vicentino has eſtabliſhed a fabric of earthen ware, with a capital of 9000 ducats; Mr. Wedgwood's forms (originally however from Italy) are imitated throughout. A good plate, plain, 12*ſ.*; ewer and baſon, 12 liv.; ſmall tea-cup and ſaucer, quite plain, 15*ſ.*; tea-pot, 4 liv.; vaze, 18 inches high, with a feſtoon and openings for flowers, 60 liv. It meets with no great ſucceſs, and no encouragement from the government.

Venice.

In the fifteenth century, Venice employed 3345 ſhips, great and ſmall, and 43,000 ſailors *. The chief export at preſent, is ſilk; the ſecond, corn of all ſorts; the third, raiſins, currants, and wine. Glaſs is yet a manufacture of ſome conſequence, though greatly fallen, even of late years. Tuyan for beads, is, however, yet unrivalled. The glaſs of Bohemia underſells, from the great cheapneſs of wood, and poſſibly from that of proviſions (my informant ſpeaks), not only the glaſs of Venice, but that of Carniola alſo. The chief export from Venice, of fabrics, is to the Levant; velvets and ſilks go there to ſome amount. The trade of the whole Venetian territory, does not employ above 250 ſhips of national bottoms.

ECCLESIASTICAL STATE.—*Bologna.*

All the ſilk of the Bologneſe, is here made into crape and gauze; the crapes are, perhaps, the fineſt in the world, price conſidered. The gauzes alſo are very beautiful: they meaſure by the *braccio* of forty inches; they ſell at 26 to 36 *baiocchi* the *braccio*; (10 *baiocchi* equal 6d. Engliſh). White handkerchiefs are alſo made of 7 liv. each. Crapes and gauzes employ ſeven or eight thouſand people.

TUSCANY.—*Florence.*

The woollen manufacture was amongſt the greateſt reſources of the Florentines, in the time of their republic.

* *Ragionamente ſul Commercio, &c. della Toſcana*, 8vo, 1781, p. 21.—*Marino Sanudo tra gli Scrittori Italici del Muratori*, tom. ii.—*Conte Carli delle Monete*, tom. iii. diſ. 7.—*Mehegan Tableau de l'Hiſt. Moder.* tom. ii. epog. 7.

In

In 1239, the friars umiliate came to Florence, to improve the manufactory of woollen cloth. They made the fineſt cloths of the age; the beſt, of the wool of Spain and Portugal; the ſeconds, of that of England, France, Majorca, Minorca, Sardinia, Barbary, Apulia, Romana, and Tuſcany *. In 1336, there were at Florence, more than two hundred ſhops, in which woollens were manufactured, which made from 70 to 80,000 pieces of cloth yearly, of the value of 1,200,000 *zecchini*; of which, the third part remained in the country for labour; and employed more than 30,000 ſouls; and thirty years before that, the number was much greater, even to 100,000 pieces, but coarſer, and of only half the value, becauſe they did not receive, nor know how to work the wools of England. In 1460, they were augmented to two hundred and ſeventy-three, but the quality and quantity unknown †. From 1407 to 1485, was the period of its greateſt proſperity. In 1450, Coſmo of Medicis, was the greateſt merchant in Europe. From the year 1365 to 1406, the republic of Florence, in wars only, expended 11,500,000 *zecchini* ‡.

I was aſſured at Florence, but I know not the authority, that 1*ſ.* a week, on the wages of the woollen manufacturers only, built the cathedral; and that at a ſingle fair, in the time of the republic, woollen goods to the amount of 12,000,000 of crowns have been ſold.

Giuliano and Lorenzo de Medici ſent into England Florentine manufacturers of wool, to exerciſe their trade, for the account of thoſe princes to take advantage of the cheapneſs of wool on the ſpot; from which circumſtance, the Florentine writer infers, that the Engliſh thus gained the art of making cloth §.

Theſe particulars, it muſt be confeſſed, are curious, but I muſt draw one concluſion from them, which will militate conſiderably with the ideas of thoſe perſons, who inſiſt that the only way of encouraging agriculture is to eſtabliſh great manufactures. Here were, for three centuries, ſome of the greateſt fabrics, perhaps the greateſt in Europe; and Piſa flouriſhed equally; and yet the eſtabliſhment and the ſucceſs of a vaſt commerce, which gave the city immenſe riches, the ſigns of which are to be met with at this day, in every part of it, had ſo little effect on the agriculture of Tuſcany, that no perſon ſkilled in huſbandry can admit it to be well cultivated; and yet the improvements in the laſt twenty years are, I am aſſured, very great. Here then is a ſtriking proof, that the prodigious trade of the Tuſcan towns had little or no effect in ſecuring a flouriſhing agriculture to the country. Theſe great political queſtions, are not to be decided by eternal reaſonings—it is by recurring to facts

* *Ragionamente Sopra Toſcana*, p. 39.

† *Ib.* p. 39, from Giovanni Villani, Franceſco Balducci, Giovanni da Uzzano Benedetto Dei.

‡ *Criſtofano Landino Apologia di Dante.* § *Ragionamente Sopra Toſcano*, p. 61.

alonè

alone, that ſatisfaction can be gained. No wonder that the rich deep ſoils of Lombardy and Flanders have been well applied; but the more ungrateful and ſteril hills of Tuſcany remain (at leaſt what I have ſeen of them) wild and unimproved.

There is yet a woollen manufacture of ſome conſideration, and they make fine cloths of Vigonia wool; alſo hats; and various fabrics of ſilk.

The export of woollens from Tuſcany in 1757, was 120,000 lb.; and in 1762, it was 180,000 lb.*

Among the ſilk manufactures, here are ſome good, and pretty ſatins, 18 *pauls* (the paul 5½d.) the *braccio*, (about two feet Engliſh), the width one *braccio* four inches.

The ſilk ſpun in Tuſcany in ten years, from 1760 to 1769 incluſive, amounts to 1,676,745 lb.; or per annum, 167,674 lb.; and in the firſt ſum is compriſed 286,979 lb. of cocoons, bought of foreigners †. The ſilk manufacture amounts to a million of crowns, (7 liv. 10*ſ.* of Tuſcany ‡). Of oil, the export is about 100,000 *barrils*. The year following the edict for the free commerce of oil and grain, the export amounted to 600,000 *ſcudi* §. Next to oil, hogs are the greateſt export, to the amount of from 20 to 30,000 in a year.

The average of the quantity of ſilk made in Tuſcany, and regiſtered in the tribunal of Florence, from 1769 to 1778, was 165,168 lb.; and the import of foreign ſilk, 48,470 lb.; together, 213,649 lb. yearly ‖.

MODENA.

In 1771, the following were the exports of the Modeneſe:

	Liv.
Brandy, 50,000 *poids*, - - -	593,280
Wine, 150,000 ditto, - - -	428,222
Oxen, 5,232 head, - - -	1,569,600
Cows, 3,068 ditto, - - -	613,400
Calves, one year, 500 ditto, - - -	69,150
Wethers and goats, 23,500 ditto, - -	141,048
Hogs, 11,580 ditto, - - -	347,280
Pigs, 21,900 ditto, - - -	329,145
Linen, hemp, ſacks, &c. 1,800,000 *braccio*, -	1,442,327
Carry forward, - -	5,533,452

* *Ragionamente Sopra Toſcana*, p. 183.
† *Penſieri Ap. Apol.* p. 56. ‡ *Ib.* p. 57. § *Ib.* p. 59.
‖ *Ragionamente Sopra Toſcana*, p. 161.

	Liv.
Brought forward, - -	5,533,452
Hogs ſalted, 1,900 poids, - - -	24,479
Poultry, - - - -	24,342
Hats of ſtraw and chip, - - -	145,308
Ditto of woollen, - - -	23,205
Groſs fabricks of wool, - - -	83,362
Butter, - - - -	106,240
Hemp, ſpun or prepared, 13,900 *poids*, - -	348,000
Wax, - - - - -	74,400
Silk, 77,650 lb. - - - -	3,897,312
Honey, - - - - -	15,350
Cheeſe, - - - -	98,556
Cheſnuts, - - - - -	17,440
Fruit, - - - - -	81,320
	10,472,766

All theſe are by the regiſters of the farms; the contraband is to be added.—Exportation is now greater than in 1771.

PARMA.

The firſt trade and export of the country is ſilk; the next cattle and hogs.

There is but one concluſion to be drawn from this detail of the commerce of Lombardy, namely, that eighteen-twentieths of it conſiſt in the export of the produce of agriculture, and therefore ought rather to be eſteemed a branch of that art, than of commerce, according to modern ideas; and it is equally worthy of notice, that thus ſubſiſting by agriculture, and importing manufactures, theſe countries muſt be ranked among the moſt flouriſhing in the world; abounding with large and magnificent towns; decorated in a manner that ſets all compariſon at defiance: the country every where cut by canals of navigation or irrigation; many of the roads ſplendid; an immenſe population; and ſuch public revenues, that if Italy were united under one head, ſhe would be claſſed among the firſt powers in Europe.

When it is conſidered, that all this has been effected generally under governments not the beſt in Europe; when we farther reflect, that England has for a century enjoyed the beſt government that exiſts, we ſhall be forced to confeſs, perhaps with aſtoniſhment, that Great Britain has not made conſiderable advances in agriculture, and in the cultivation of her territory. The waſtes of the three kingdoms are enormous, and far exceeding, in proportional extent, all that are to be found

found in Italy; while, of our cultivated diſtricts, there are but a few provinces remarkable for their improvements. Whoever has viewed Italy with any degree of attention, muſt admit, that if a proportion of her territory, containing as many people as the three Britiſh kingdoms, had for a century enjoyed as free a government, giving attention to what has been a principal object, viz. agriculture, inſtead of trade and manufacture, they would at this time have made almoſt every acre of their country a fertile garden; and would have been in every reſpect a greater, richer, and more flouriſhing people than we can poſſibly pretend to be. What they have done under their preſent governments, juſtifies this aſſertion: we, bleſſed with liberty, have little to exhibit of ſuperiority.

What a waſte of time to have ſquandered a century of freedom, and laviſhed a thouſand millions ſterling of public money *, in queſtions of commerce! He who conſiders the rich inheritance of a hundred years of liberty, and the magnitude of thoſe national improvements, which ſuch immenſe ſums would have effected, will be inclined to do more than queſtion the propriety of the political ſyſtem, which has been adopted by the legiſlature of this kingdom, that in the boſom of freedom, and commanding ſuch ſums, has not, in the agriculture of any part of her dominions, any thing to preſent which marks ſuch expence, or ſuch exertion, as the irrigation of Piedmont and the Milaneſe.

SECT. V.—OF POPULATION.

MILANESE.

In all Auſtrian Lombardy there are 1,300,000 ſouls.

In 1748, the population was about 800,000; and in 1771, it was 1,130,000. The Milaneſe contains 3000 ſquare miles †. In 1732, there were 800,000 *pertiche* uncultivated; in 1767, only 208,000. In a ſquare mile, of ſixty to a degree, there are, in the Milaneſe, 354 ſouls. There are in the Dutchy, 11,385,121 *pertiche*, at 4868 *pertiche* in a ſquare mile; and there are in the State, excluſive of roads, lakes, rivers, &c. 2338 ſquare miles ‡, and 377 perſons per ſquare mile, which is certainly very conſiderable; and, that my readers may have a clearer idea of this degree of population, I ſhall remark, that to equal it, England ſhould contain 27,636,362 ſouls §.

* *Sir John Sinclair's Hiſtory of the Public Revenue*, vol. ii. p. 98.
† *Delle Opere del S. Conte Carli*, 1784, tom. i. p. 132. ‡ *Ib.* p. 319.
§ At 73,306 ſquare miles each of 640 acres.

VENETIAN STATE.—*Padouan.*

In the whole diſtrict of the Padouan, there were, in 1760, 240,336 ſouls: in 1781, they were 288,300: increaſe 47,914. There is probably no corner of Europe, barbarous Turkey alone excepted, in which the people do not increaſe conſiderably—we ought not therefore in England, to take too much credit for that rapid augmentation which we experience. It is found under the worſt governments, as well as under the beſt, but not equally.

Venice.

The population of the whole territory, 2,500,000: of the city, between 143 and 149,000, the Zuedecca included.

In Friuli, in 1581, there were 196,541; and in the city of Udine, 14,579. In 1755, in Friuli, 342,158; and in Udine, 14,729 *. The population of all the States of Venice, by another authority, is made 2,830,000; that is 600,000 in Bergamo, Breſcia, &c.: in the reſt of the Terra Firma, 1,860,000: in Dalmatia and Albania, 250,000: in the Greek iſlands, 120,000 †. In the time of Gallo, who died in 1570, there were ſaid to be in the Breſcian, about 700,000 ſouls; in 1764, there were 310,388 ‡.

TUSCANY.

The progreſſive population of Florence is thus ſhewn, by Sig. Laſtri:

1470 §, - - -	40,323
1622, - - - -	76,023
1660, - - - -	56,671
1738, - - - -	77,835
1767, - - - -	78,635 ‖

The total population of the Dukedom, is calculated at about 1,000,000 **. Two centuries ago, the population of the fields in the mountains, and on the

* *Gemelli*, vol. ii. p. 16. † *Della Piu' utile Ripartizione de' Terreni, &c. San Martino*, 4to, p. 13.

‡ *Gallo Vinti Giornata*, Breſcia, 1773, p. 413. § *Decima*, tom i. p. 232.

‖ *Ricerche ſull' Antica e Moderna Popolazione della Citta di Firenze*, 4to, 1775, p. 121. Sig. Paoletti is a ſenſible writer, and a good farmer, but he is of Dr. Price's ſchool,—" L' antica popolazione della Toſcana era certamente di gran lunga ſuperiore a quella de' noſtri tempi;"—from Boccaccio, he makes 100,000 to die in Florence, of the plague in 1348; yet, in little more than a century after, there was not half the number in the city; he admits, however, that this is *eſagerato*. *Penſieri Sopra l'Agricoltura*, p. 18.

** *Ivere Mezzi Paoletti*, p. 58.

ſea-coaſt,

ſea-coaſt, was little leſs than double what it is at preſent. And there is ſaid to have been the ſame proportion in the cultivation and cattle*.

MODENA.

State of the Dutchy in 1781:

Eccleſiaſtics, - - -	8,306
Infants, under fourteen years of age, -	50,291
Girls, ditto, - - -	49,516
Men, - - - - -	115,464
Women, - - -	124,822
Total	348,399

Marriages, 2,901; births, 12,930; deaths, 10,933. Multiplying the births therefore by 27, gives nearly the population; or the deaths by 41.—Of this total, the following are in the mountain diſtricts:

Carrara, - - -	8,865
Maſſa, - - - -	11,070
Garfagnana, - - -	22,242
Varano, - - - -	629
Caſtel Nuovo, - - -	14,576
Frignano, - - -	19,526
Monteſiorino, - - -	15,721
Monteſe, - - -	19,694
Total	112,323

The reſt in the plain.

PIEDMONT.

Subjects in the King of Sardinia's territories, 3,000,000. In Savoy, 400,000. In Sardinia, 450,000. In Turin, in 1765, 78,807. In 1785, it was 89,185. In 1785, births 3394; deaths 3537.

* *Diſſertazione ſulla la Moltiplicazione del Beſtiame Toſcano.* Andreucci, 8vo, 1773, p. 14.

OF

OF THE POOR.

MILANESE.—*Milan.*

Charitable foundations, in the city only, amount to 3,000,000 liv. (87,500l. ſterling). In the great hoſpital, there are commonly from twelve to fifteen hundred ſick: the effect is found to be exceedingly miſchievous, for there are many that will not work, depending on theſe eſtabliſhments.

Mozzata.

The labourers here work in ſummer thirteen hours. Breakfaſt one hour; dinner two hours; merenda one hour; ſupper one hour; ſleep ſix hours. They are not in a good ſituation. I was not contented to take the general deſcription, but went early in a morning, with the Marquis Viſconti and Sig. Amoretti, into ſeveral cabins, to ſee and converſe with them. In this village they are all little farmers: I aſked if there were a family in the pariſh without a cow, and was anſwered expreſſly there was not one, for all have land. The pooreſt we ſaw had two cows and 20 *pertiche*; for which ſpace he paid five *moggio* of grain, one-third wheat, one-third rye, and one-third maiz. Another, for 140 *pertiche*, paid 35 *moggio*, in thirds alſo. The poor never drink any thing but water; and are well contented if they can manage always to have bread or polenta; on Sunday they make a ſoup, into which goes perhaps, but not always, a little lard; their children would not be reared, if it were not for the cow. They are miſerably clad; have in general no ſhoes or ſtockings, even in this rainy ſeaſon of the year, when their feet are never dry; the other parts of their dreſs very bad. Their furniture but ordinary, and looks much worſe from the hideous darkneſs from ſmoke, that reigns throughout; yet every cabin has a chimney. They have tolerable kettles, and a little pewter; but the general aſpect miſerable. Fuel, in a country that has neither foreſts nor coal-pits, muſt be a matter of difficulty, though not in the mountains. They were heating their kettles, with the ears of maiz, with ſome heath and broom. In the cold weather, during winter, they always live in the ſtable with their cattle, for warmth, till midnight or bed-time. For day labour they are paid 10*ſ.* a day in winter, and 12*ſ.* in ſummer. For a houſe of two rooms, one over the other, the farmer of 20 *pertiche* pays 24 liv. a year; that is to ſay, he works ſo much out with his landlord, keeping the account, as in Ireland, with a tally, a ſplit ſtick notched. They are not, upon the whole, in a ſituation that would allow any one to approve of the ſyſtem of the poor being occupiers of land; and are apparently in much more uneaſy circumſtances,

cumſtances, than the day labourers in the rich watered plain, where all the land is in the hands of the great dairy farmers. I drew the ſame concluſion from the ſtate of the poor in France; theſe in the Milaneſe ſtrongly confirm the doctrine; and unite in forming a perfect contraſt, with the ſituation of the poor in England, without land, but with great comforts.

State of Venice.

The people appear, in the diſtricts of Bergamo, Breſcia, Verona, and Vicenza, to be in better circumſtances than in the Padouan. And from thence to Venice, there are ſtill greater appearances of poverty: many very poor cottages, with the ſmoke iſſuing from holes in the walls.

Villamagna.

The peaſantry, a term which, in all countries where the landlord is paid by a ſhare of the produce, and not a money rent, includes the farmers, who are conſequently poor, live here better than in diſtricts more diſtant from the capital; they eat fleſh once a week; the common beverage is the ſecond maſh, or wort, of the wine; eat wheaten-bread; and are cloathed pretty well.

SECT. VI.—OF PROHIBITIONS.

Piedmont.

The exportation of the cocoons of ſilk is prohibited; and the effect highly merits the attention of the politician, who would be well informed, from practice, of the principles of political œconomy. It is a periſhable commodity, and therefore it is not at all likely, that if the trade were free, the quantity ſent out would be any thing conſiderable; yet, ſuch is the pernicious effect of every ſpecies of monopoly, upon the ſale of the earth's products, that this prohibition ſinks the price 30 per cent. While the cocoons ſell in Piedmont at 24 liv. the *rubbio*, they are ſmuggled to the Genoeſe at 30 liv.; which export takes place in conſequence of the monopoly having ſunk the price. The object of the law is to preſerve to the ſilk-mills, the profit of converting the ſilk to organzine; and for this object, ſo paltry on compariſon with the miſchief flowing from it, the land-owners are cheated in the price of their ſilk 30 per cent.: the State gains nothing; the country gains nothing; for not a ſingle pound would be exported if the trade were free, as the motive for the export would then ceaſe, by the price

price riſing: the only poſſible effect is, that of taking 30 per cent. on all the ſilk produced out of the pockets of the grower, and putting it into thoſe of the manufacturer. A real and unequivocal infamy; which reflects a ſcandal on the government, for its ignorance in miſtaking the means of effecting its deſign; and for its injuſtice, in fleecing one claſs of men, for the profit of another. I demanded why the Piedmonteſe merchants could not give as good a price as the Genoeſe. "*They certainly could give as good a price, but as they know they have the monopoly, and the ſeller no reſource in an export, they will have it at their own price; and if we do not give them this profit of* 30 *per cent. we cannot ſell it at all.*" What an exact tranſcript of the wool laws in England!

Another prohibition here, not equally miſchievous, but equally contrary to juſt principles, is that of keeping ſheep in ſummer, any where in or near the plain of Piedmont; it is not eaſy to underſtand, whether the object of this law is, that the ſheep at that ſeaſon *ſhall* be kept in the mountains, or that they ſhall *not* be kept in the plain. In winter they are allowed every where. The ſhepherds buy the laſt growth of the meadows, at 5 liv. or 6 liv. per *giornata* for them; and pay for ſuch hay, as may be wanted in froſt or ſnow.

Corn from Sardinia is not allowed to be exported, but when the quantity is large, and then paying a heavy duty, yet this is the only commodity of the iſland; and the execrable policy that governs it, has rendered it one of the moſt wretched deſerts that is to be found in Europe*. On account of this duty, they pay no land-tax †. No wonder that the authors of ſuch a policy want to ſell their inheritance!

MILANESE.

The export of cocoons are here alſo prohibited; and as it is rather more ſeverely ſo than in Piedmont, the price is of courſe ſomething lower. The duty on the export of ſilk, is 7½*ſ.* per pound.

Keeping ſheep in the vale of the Milaneſe, every where prohibited by government, from the notion that their bite is venomous to rich meadows. The ſame in the Veroneſe; and there is a diſſertation in the Verona Memoirs in favour of them.

STATE OF VENICE.—*Breſcia.*

The cultivation of the mountains is every where prohibited in this republic, leſt the turbid waters falling into the Lagunes, ſhould fill up thoſe channels, and unite Venice with the Terra Firma. Mr. Profeſſor Symonds has remarked

* *Riſioramente della Sardegna*, tom. i. p. 3. † *Ib.* p. 147.

the

the ill effects of cutting woods on the mountains, relative to the miſchief which rivers in that caſe do to the plains; it is ſuſpected in Italy, that there are other reaſons alſo; and they have obſerved in the territory of Aqui, in Piedmont, that hail has done more miſchief ſince the woods have been cut down, in certain diſtricts of the mountains, between the Genoeſe territory and Montferat*.

Verona.

The export of wheat is prohibited when the price exceeds 24 liv. the ſack, of 11 *peſi*, of 25 lb.; 11 *peſi* are 205 lb. Engliſh; and therefore 24 liv. equals 26s. 6d. per quarter Engliſh, of 456 lb.; apparently a regulation that is meant as an abſolute prohibition. The export of maiz is alſo prohibited, when it reaches a certain price, proportioned to this of wheat. The export of cocoons and unſpun ſilk prohibited.

Vicenza and Padoua.

The export of cocoons prohibited.

Venice.

The export of wool, from the Venetian territory, has been always prohibited. The export of wheat is prohibited, when the price arrives at 22 liv. the *ſaccho*; but ſo much depends on the magiſtrate, that there is no certainty, and conſequently the trade crippled. The *ſtajo*, or *ſtaro Veneziano* of wheat, is 133 lb. *groſſo*; 4 *ſtari* 1 *mozzo*. The ſack of flour is 204 lb. to 210 lb.† The ſack of wheat 132 lb. *groſſo* ‡. As the Venetian pound is about one-twentieth heavier than the Engliſh, 22 liv. the ſack about equals, not exactly, 36s. the Engliſh quarter, but the ratio of the price is of little conſequence, in laws, the execution of which depends on the will of the magiſtrate ‖. Another prohibition, which marks the ſhort and fallacious views of this government, on every object but that of their own power, is in the duration of leaſes; no perſon is allowed to give a longer one than for three years; which is in fact, to declare by law, that no renter ſhall cultivate his farm well.

ECCLESIASTICAL STATE.—*Bologna.*

The government of this country, in reſpect to taxes, is the mildeſt herhaps in Europe; but it loſes much of its merit by many prohibitions and reſtrictions,

* *Memorie della Soc. Agraria*, vol. iv. p. 3.

† *Trattato della Pratica di Geometria Perini*, 4to, Verona, 1751.

‡ *De la Lande's Voyage en Italie*, tom. vii. p. 81.

‖ On this point, ſee Mr. Profeſſor Symonds's excellent paper in the *Annals of Agriculture.*

which have taken place more or leſs throughout Italy. Silk cannot be ſold in the country; it muſt all be brought to the city. All wood, within eight miles of the ſame place, is a ſimilar monopoly; it can be carried no where elſe. The export of corn is always prohibited; and the regulation ſtrictly adhered to; and, it may be remarked, that the price is never low; the natural, and probably the univerſal effect of ſuch a policy, muſt be a high price, inſtead of that low one, which is the object of the State.

TUSCANY.

In the States I have hitherto mentioned, to name prohibitions, is to exemplify their miſchief in the conduct of all the governments, through whoſe territories I have yet paſſed; but in Tuſcany the taſk is more agreeable—to give an account of prohibitions there, is to ſhew the benefit of their reverſal, and of that ſyſtem of freedom, which the late beneficent ſovereign introduced.

In 1775, an unlimited freedom in the export and import of corn was eſtabliſhed. The effect of this freedom, in the commerce of corn, has been very great; in the firſt place, the price of corn has riſen conſiderably; and has never for a moment been low; the riſe has been ſteady; famines and any great ſcarcity have been abſolutely avoided, but the augmentation of price on an average has been great. I was aſſured, on very reſpectable authority, that landlords, upon a medium of the territory, have doubled their incomes, which is a prodigious increaſe. This vaſt effect has not flowed immediately from the riſe in the price of corn, but partly from an increaſed cultivation, in conſequence of that price, and which would never have taken place without it. On the other hand, the conſumers feel a very great riſe in the price of every article of their conſumption; and many of them have complained of this as a moſt miſchievous effect. I was aſſured, that theſe prices have been doubled. Such complaints can be juſt only with reſpect to idle conſumers, at fixed incomes; a penſion or an annuity is undoubtedly not ſo valuable now, as it was before the free corn trade; this is clear; but it is equally certain, that landlords, and all the mercantile and induſtrious claſſes, profit greatly by the general riſe: this fact is admitted, nor would the improvement of all the arts of induſtry; the ſituation of the poor moſt highly ameliorated; and the increaſe of population, allow it to be queſtioned. Before the free trade, the average price was 5½ *pauls* (each 5½d.) per *ſtajo*, of 54 lb.; now the average is 9 *pauls*. Here is a riſe in the price of 40 per cent. Thoſe whoſe intereſts, or whoſe theories point that way, will contend that this muſt be a moſt pernicious evil, and that the conſumers of corn muſt ſuffer greatly; it however happens, and well it deſerves to be noted, that every branch of induſtry, commercial and manufacturing, has flouriſhed more

more decidedly ſince that period, than in any preceding one, ſince the extinction of the Medici. This is one of the greateſt political experiments that has been made in Europe; it is an anſwer to a thouſand theories; and ought to meet with the moſt ſtudious attention, from every legiſlator that would be thought enlightened.

No body can expreſs himſelf better againſt the regulations in the corn trade, than Paoletti:—" Uno dei più gravi e dei piu ſolenni attentati, che in queſto genere ſi ſia fatto, è che ancora, da una gran parte dei politici governi ſi fà all' ordine naturale è certamente quello, delle reſtrizioni è dei divieti nel commercio de'grani. Non han conoſciuto moſtro il più orribile, il più funeſte quelle ſfortunate nazioni che ne ſono ſtate infeſtate. Le peſti, le guerre, le ſtragi, le proſcrizioni dovunque aprirono il teatro alle loro tragedie non arrecarono mai tanti danni al genere umano, quanto queſta arbitraria politica *."

It is remarked, by a very intelligent writer, that the early declenſion of Tuſcan agriculture, was cauſed by the ill-digeſted and injurious laws of reſtriction and prohibition, in the beginning of the ſixteenth century: the price of proviſions was regulated, in order to feed manufacturers cheaply, not perceiving that the earth gave ſcanty fruits to poor cultivators; that exalting the arts by the depreſſion of agriculture, is preferring the ſhadow to the body. Wool was wanted for the fabrics, yet no encouragement given to breeding ſheep. Merchants and manufacturers compoſing the legiſlative body, whoſe intereſts were concentrated in Florence; all the other towns, and generally the country, were ſacrificed at the ſhrine of the capital: they made a monopoly of the Levant trade, and even of ſhip-building; which had ſuch pernicious conſequences, that in 1480, they were obliged to lay open the remnants of trades once flouriſhing †. They ſhewed the greateſt eagerneſs to encourage the planting of mulberry-trees; yet knew ſo little of the means of doing it, that they ſubjected the ſale of cocoons to a multitude of reſtrictive regulations, and even fixed the price, and gave a monopoly of the purchaſe ‡; and even the power of fixing the price of ſilk was, by the government, given to four dealers; and in 1698, the whole trade was ſubjected to the price of one man; and ſuch was the effect of theſe fine meaſures, that a law was paſſed *forcing* plantations of mulberries; four trees to every pair of oxen employed §. So utterly ſubverſive of the intention will the prohibitory ſyſtem always prove!

By the edicts of 1775, 1779, and 1780, of the Grand Duke, a multitude of reſtrictions, on the ſale of cocoons and wool, and on the fabric of both ſilks

* *Iveri Mezzi*, &c. *Ap. Apol.* 1772, 8vo, p. 19. † *Ragionamente Sopra Toſcana*, p. 68.

‡ Coſmo I. firſt allowed the export of cocoons, February 22, 1545; ſubject to a duty of 18*ſ.* the pound, of one ſort, and 3*ſ.* the other; augmented ſucceſſively, and at laſt fixed to 2 liv.

§ *Ragionamente*, p. 83.

and woollens, were aboliſhed. A free trade in corn, oil, cattle, and wool, was given * about the ſame time; as well as the rights of commonage deſtroyed †. By the edict of March 18, 1789, the plantation and manufacture of tobacco was made free; and, that the farmers of the revenue might not be injured, the benevolent ſovereign declares he will buy all cultivated on the uſual terms, till the expiration of the farmer's leaſe ‡.

I am very ſorry to add to the recital of ſuch an enlightened ſyſtem, a conduct in other reſpects borrowed entirely from the *old ſchool:* the export of cocoons has been long prohibited; and even that of ſpun ſilk is not allowed. But what is much worſe than this, the export of wool, about ſix months ago, was forbidden, under the ſhallow pretence of encouraging manufactures. Such a monopoly, againſt the agriculture and improvement of the country, is directly contrary to the general ſpirit of the Grand Duke's laws. The ſame arguments which plead in its favour, would prove equally in favour of prohibitions, and ſhackles on the corn trade; he has broken many monopolies: Why give a new one? The moſt plauſible plea for this, is the example of England; but does he know that of all the fabrics of that kingdom, this of wool is the leaſt flouriſhing; and preciſely by reaſon of the manufacturers having the monopoly of the raw material, and thereby being enabled to ſink the price 60, and even to 70 per cent. below the common rates of Europe? The total failure of this policy in England, which cheats the land of four millions a year, in order not to increaſe, but to hurt the fabric, ſhould plead powerfully againſt ſo pernicious an example. They ſhould know, that the raw materials of our moſt flouriſhing fabrics, are exportable; ſome free, and others under low duties; and that wool is an exception to all the reſt; and at the ſame time, the manufacture that has made the leaſt progreſs ‖.

MODENA.

The export of wool is prohibited; wherever this is the caſe, it is not to be expected that any exertions can be made in improving the quality; and accordingly we find that all the Modeneſe is miſerably bad. The meaſure is intended as a gratification to the manufacture; and when that poſſeſſes the mo-

* *Leggi dei*, Sep. 14, 1774; Dec. 28. Alſo, Aug. 24, and Dec. 11, 1775.

† March 7, and Apr. 11, 1778.

‡ *Della Coltivazione del Tobacco. Laſtri.* Firenze, 8vo, 1789, p. 40.

‖ See this point particularly explained in *Annals of Agriculture*, vol. x. p. 235, and in many other papers of that work. Some of theſe memoirs were tranſlated and publiſhed in French, under the title of *Filature, commerce et prix des Laines en Angleterre*, 8vo, 1790; but ſome of the beſt papers, for inſtance, that above alluded to, and others, were left out of the collection.

nopoly,

nopoly, the wool is ſure to be worthleſs; which is the caſe here. They make in the mountains, ſome coarſe things for the wear of the common people.

PARMA.

There is a fabric of earthen-ware at the city of Parma, to encourage which, the import of all foreign ware is prohibited; the effect is, that the manufacture is contemptible, without an effort of improvement; it has the monopoly of the home conſumption, which yields a great profit, and further nobody looks. It was juſtly obſerved to me, that with ſuch a favour no flouriſhing manufacture could ever ariſe at Parma, as the advantage of the monopoly was greater. The policy of prohibitions has every where the ſame reſult.

SECT. VII.——OF THE PRICES OF PROVISIONS, 1789.

Nice.

Bread, 3*ſ.* (the Piedmonteſe *ſol* is the twentieth part of a livre, or a ſhilling, and the pound is about one-tenth heavier than the Engliſh). Beef, 3*ſ.* 8 *den.* Mutton, 4*ſ.* Veal, 5*ſ.* Butter, 12*ſ.* Cheeſe, 11*ſ.* Bread, laſt winter, 1 *piccolin* (one-ſixth of a *ſol*) cheaper. At theſe prices of meat, weighing-meat added.

Coni.

Bread, 2*ſ.* 3 *den.*; for the poor, 1½*ſ.* Beef, 3*ſ.* 2 *den.*

Turin.

Bread, 3*ſ.* Veal, 5*ſ.* Butter, 9*ſ.* Cheeſe, 9*ſ.* Brown bread, 2½*ſ.*; for the poor, 1*ſ.* 8 *den.* Nobody but the poor eats beef or mutton.

Milan.

Beef, 13*ſ.* Cow ditto, 10*ſ.* (the *ſol* the twentieth of the livre, which is 7½d.; the pound *groſſo* is to that of England, by Paucton, as 1.559 is to 0.9264). Mutton, 10½*ſ.* Veal, 15*ſ.* Pork, 18*ſ.* Butter, 35*ſ.* Cheeſe, Lodizan, 42*ſ.*

Codogno.

Bread, 4 oz. 1*ſ.* Beef, 12*ſ.* per lb. Veal, 12*ſ.* Butter, 22*ſ.*

Verona.

Bread, 5 *ſ.* per lb. of 12 oz. (equal to ¾ lb. Engliſh). 20 Venetian *ſols* equal to 6d. Engliſh.

Vicenza.

Vicenza.

Beef, 14*ſ.* per lb. of 12 oz. *groſſo*; this ounce is to the Engliſh, as 690 is to 480. Mutton, 13*ſ.* Veal, 16*ſ.* Pork, 17*ſ.* Butter, 30*ſ.* Cheeſe, 32*ſ.*; ditto of Lodi, 44*ſ.* Hams, 44*ſ.* Bread, by the ounce *ſotile* (which is to the *groſſo*, as 1 is to 1½), 6*ſ.*

Padua.

Beef, 14*ſ.* per lb. of 12 oz. *groſſo* (which is to the Engliſh pound, as 9966 is to 9264. Paucton). Mutton, 12*ſ.* Veal, 16*ſ.* Pork, 16*ſ.* Butter, 32*ſ.* Cheeſe, 24*ſ.*

Venice.

Beef, 15*ſ.* per lb. *groſſo* (to that of Engliſh, as 9758 is to 9264. Paucton). Mutton, 13*ſ.* Veal and pork, 18*ſ.*

Ferrara.

Beef, 3½ *baiocchi* (10 to a *paul* of 6d.) per lb. of 12 oz. Mutton, 3 *baioc.* Veal, 4 *baioc.* Butter, 9 *baioc.* Cheeſe, 8 *baioc.*

Bologna.

Bread, 2 *baiocchi* per lb. (to the pound Engliſh, as 7360 is to 9264. Paucton). Beef, 4 *baioc.* 2 *quatrini.* Mutton, 3 *baioc.* 4 *quat.* Veal, 5 *baioc.* 2 *quat.* Pork, 6 *baioc.* Butter, 10 *baioc.*; and in winter, from 15 *baioc.* to 20 *baioc.*

Florence.

The livre (of 8½d.) is 12 *grazie*, or 20 *ſoldi*, the *ſol* is 3 *quatrini*; and the pound is three-quarters Engliſh. Bread, 8 *quatrini* per lb. Meat in general, 7½*ſ.* Butter, 1½ *paul* (the *paul* 5½d. Engliſh). Cheeſe, 10*ſ.*

MODENA.

Bread, the beſt white, ½ *paul* per lb. (the *paul* is 6d. Engliſh; and the pound is to ours, as 6513 is to 9264, or ſomething under twelve of our ounces). For the poor it is cheaper. Bread is thus dear, owing to the *entrées* and *gabelle*; a ſack of flour, of 70 liv. ſells at 100 liv. Beef, 12 *bolognini* per lb. Mutton, ⅓ of a *paul*, or 10 *bol.* Veal, 13 *bol.* Pork, 14 *bol.* Butter, 1 *paul.* Cheeſe, 40 *bol.*

Laneſbourg.

Bread, 4*ſ.* for 18 oz. Meat of all ſorts, from 3*ſ.* to 3½*ſ.* for 12 oz. Cheeſe, from 4*ſ.* to 5½*ſ.* Butter, 6*ſ.* for 12 oz.

CORN,

CORN, 1789.

PIEDMONT.—*Coni.*

Rye, the *eymena* of 2 *rubbio*, or 50 lb. 3 liv.

Chentale.

Wheat, the *eymena* of 45 lb. or 52 lb. aver. 47, 3 liv. 15*ſ.* In common, 3 liv. 15*ſ.* Maiz, 2 liv.

Turin.

Maiz, 2 liv. Wheat, 3 liv. 10*ſ.* the *eymena* of 50 lb. Rye, 2 liv. 10*ſ.*

Milan.

Wheat, 34 liv. the *moggio* of 140 lb. 28 oz. Oats, 15 liv. Maiz, 20 liv. Miglio, 18 liv. Rice, 44 liv.

Codogno.

Rice, 5 liv. the *ſtara*. Willow wood, 14 liv. 6 *braccio* long and 3 *braccio* broad. Flax, 5½*ſ.* for 5 oz. ready for combing; 50*ſ.* per lb.

Verona.

Wheat, the export prohibited when it exceeds 24 liv. the ſack, (26s. 6d. Engliſh quarter). Maiz, now 24 liv. the ſack, of 11 *peſi*, of 25 lb.; common price, from 20 liv. to 22 liv.; has been ſo low as 6 liv.

Venice.

Wheat flour, 8½*ſ.* per lb. Bergamaſque maiz, 24*ſ.* the *quarterole*, of 6 lb. Common maiz, 22*ſ.*

Bologna.

Wheat, the *corba*, 24 *pauls*. Maiz, 18 *pauls*. Oats, 12 *pauls*. Barley, 16 *pauls*. Beans, 18 *pauls*.

Florence.

Wheat, 9 *pauls* the *ſtajo*, which may in a rough way be called 1d. per lb.: this is 4s. 9d. per Engliſh buſhel, of 57 lb.; and 5s. per buſhel, of good wheat. Before the free corn trade, it was on an average, at 5½ *pauls*. Beans, now 5½ *pauls* to 7 *pauls*. Saggina (great millet), 4 *pauls* the *ſtajo*. Maiz, from 4 *pauls* to 5 *pauls*. Barley, 5 *pauls*. Oats, 4 *pauls*. French beans, 7 *pauls*.

WINE,

WINE, FUEL, HAY, STRAW, &c.

Nice.

Wine, 7*ſ.* the bottle. Charcoal, 24*ſ.* per 100 lb. Wood, 15*ſ.* per 100 lb.

Chentale.

Hay, from 5*ſ.* to 8*ſ.* the *rubbio*, of 25 lb.

Turin.

Hay, 10*ſ.* the *rubbio*. Straw, the ſame. Wine of Brenta, 7 liv. 10*ſ.* the 36 pints, each 4 lb.; for the poor, 4 liv. Wood, 12 liv. the load, of 200 pieces, 3 feet long. Charcoal, 12½*ſ.* the *rubbio*. Candles, from 9*ſ.* to 10*ſ.* Soap, 7*ſ.* Lime, 5½*ſ.* the *rubbio*. Bricks, 22 liv. per thouſand.

Milan.

Iron, the pound of 12 oz. 5*ſ.* Charcoal, 100 lb. of 28 oz. 3 liv. Bricks, 30 liv. per thouſand.

Mozzata.

Wine, common price, 10 liv. or 12 liv. the *brenta*, now 6 liv.

Milan.

Hemp, ready for ſpinning, 1 liv. per lb. of 28 oz. Flax, ditto, 32½*ſ.* Oil, linſeed, per lb. of 28 oz. 26*ſ.* Walnuts, 1 liv.

Verona.

Wood, 5*ſ.* the *peſo*, of 25 lb. (18 lb. Engliſh).

Vicenza.

Candles, 20½*ſ.* Soap, 20*ſ.* Dutch herrings, 3*ſ.* each. Iron, 11*ſ.* *groſſo*. Charcoal, from 5 liv. to 8 liv. the 100 lb. Coals, from Venice, 4½ liv. the 100 lb. Wood, the *carro*, of 108 cubical feet, 22 liv.; of oppio, walnut, &c. the pieces the ſize of a man's arm. Sugar, from 25*ſ.* to 35*ſ.* *ſotile*. Coffee, 3 liv. 6*ſ.* Chocolate, 3½ liv. or 4 liv.; with vanilla, 6 liv. or 7 liv. By the ounce *groſſo*, which is to the ounce Engliſh, as 690 is to 480, is weighed fleſh, butter, cheeſe, candle, ſoap, &c. By the ounce *ſotile*, is weighed ſugar, coffee, drugs, rice, bread, ſilk, &c.; it is as 1 is to 1½.

Ferara.

Wine, 1 *baiocca* the *bocali*.

Bologna.

Bologna.

Wood, the load, 30 *pauls*. Faggots, 24 liv. per 200. No coal. Charcoal, 1½ *paul* the *corba*. Bottle of common wine, from 3 *baioc*. to 5 *baioc*: common price of wine, from 20 *pauls* to 30 *pauls* the *corba*, of 60 *bocali*. Sugar, 2 *pauls* 1 *baioc*. the lb. Coffee, 2 *pauls* 2 *baioc*. Of Moka, 3 *pauls* 5 *baioc*. Candles, 8 *baioc*. Wax ditto, 8 *pauls*. A footman, with a livery, 50 *pauls* a month. A man cook, from 20 to 40 *zecchins*. An Engliſh gentleman's table is ſerved, nine in the parlour, and five in the kitchen, by contract, for 20 *pauls* a day.

Florence.

To plough a *ſtiora* of land, 3 liv. Hay, 4 *pauls* the 100 lb. (about 2l. 15s. a ton). Straw, 3 *pauls* per 100 lb. Wine, 8 *grazie* the bottle. Charcoal, 100 lb. 4 *pauls*. Wood, the *cataſter* of 6 *braccia* long, 1½ broad, and 2 high, 28 liv. Rent of a poor man's houſe, 18 *pauls*.

MODENA.

Wood, 45 liv. the load, of 3 *braccia* long, 3 high, and 3 broad. Wine, 40 liv. the 12 *peſi*. Candles, 20 *bol*. Soap, 15 *bol*.

PARMA.

Hay, 80 *peſi*, 150 liv. (the *peſi* 25 lb. each ½ lb. Engliſh; and the livre 2½d. about 1l. 9s. per ton).

LABOUR.

Nice.

Summer, 30*ſ*. (1s. 6d.) Carpenter and maſon, 40*ſ*. (2s.)

Coni.

Summer, 14*ſ*. Winter, 10*ſ*. (6d.) Maſon, 25*ſ*.

Savigliano.

Summer 12*ſ*. Winter, 10*ſ*. Farm ſervants wages, about 100 liv. (5l.) a year, beſide their food, which conſiſts of 3 lb. or 4 lb. of bread, according to the ſeaſon, a ſoup maigre, a *polenta* (a maiz pudding), &c. &c. During the ſummer, they add cheeſe, and a little ſmall wine, with a ſallad; and in harveſt time, a ſoup of good wine, which they call *merendon*, but they then work twelve hours a day.

Turin.

Summer, 11*ſ.* Maſon, 25*ſ.* Carpenter, 27*ſ.*

Milan to Pavia.

Summer, 22½*ſ.* (8d.) Winter, 10*ſ.* (3½d.) Manufacturers, 40*ſ.* Labourers pay 7 liv. (at 7d. Engliſh) for a cottage, and a very little garden.

Mozzata.

Summer, 12*ſ.* Winter, 10*ſ.*

Lodi.

Summer, 20*ſ.* Winter, 12*ſ.* Harveſt, 30*ſ.* Mowing, 20*ſ.* a day; a good hand mows 5 *pertiche* a day.

Codogno.

Weavers, 20*ſ.*

Verona.

Summer, 30*ſ.* (9d.) Winter, 20*ſ.* (6d.)

Vicenza.

Summer, 16*ſ.* Winter, 14*ſ.* Mowing, 30*ſ.*

Padoua.

Summer, 25*ſ.* and wine. Mowing, 2 liv. (1s.) a day: wheat, 3 liv. ditto. Winter, 16*ſ.*

Venice.

Summer, from 30*ſ.* to 40*ſ.* Maſon, 4 liv.: the loweſt in the arſenal, 3 liv. a day.

Ferrara.

Summer, 25 *baiocchi* (1s. 3d.) Winter, 12 *baioc.*

Bologna.

Summer, 12 *baioc.* and 2 *bocali* of wine, each 3 lb. 4 oz. Winter, 10 *baioc.* (6d.) In harveſt, to 20 *baioc.* Half a day, of 4 oxen and 2 men, 5 *paoli* (2s. 6d.) Manufacturers earn from 5 to 20 *baioc.* a day. The women that ſpin hemp, 3 or 4 *baioc.*

Florence.

In the ſilk mills of Florence, they are now (November) working by hand, for want of water. The men earn 3 *pauls* (1s. 4½d.) A girl of fifteen, 1 *paul* (5½d.) In the porcelaine fabrics of the Marcheſe Ginori, common labour,

2 or

2 or 3 *pauls*. Painters, 4½ *pauls*. In ſummer, 1½ *paul* and food. In winter, 1 *paul* and ditto. To plough a *ſtiora* of land, 3 liv. Threſhing corn by the day, 1 liv. and food. Cutting corn, 18 *grazie* and food.

MODENA.

Common labour, 1 *paul* and wine. Carpenter and maſon, 2 *pauls*.

PARMA.

Printer's men, 3 *pauls* a day, (16½d.)

Laneſbourg.

Winter, 10*ſ.* and food. Summer, 20*ſ.* and food.

POULTRY.

Nice.

Turkey, 7 liv. Fowl, 20*ſ.* Pigeon, 20*ſ.* Eggs, 12*ſ.* the dozen.

Turin.

Turkey, 30*ſ.* Fowl, 15*ſ.* Duck, 25*ſ.* Gooſe, 25*ſ.* Pigeon, 10*ſ.* Eggs, the dozen, 8*ſ.*

Milan.

Turkey, 11*ſ.* per lb. Fowl, 20*ſ.* Duck, 32*ſ.* Eggs, the dozen, 26*ſ.* Capon, 15*ſ.* per lb.

Bologna.

Turkey, of about 4 lb. 3½ *pauls*. Pair of capons, 30 *baiocchi*. Eggs, 1 *baioc*. each; in winter, 1½ *baioc*. Tame large pigeons, 24 *baioc*. the pair. Wild ſmall pigeons, 12 *baioc*. Eels, from 12 to 14 *baioc*. per lb. Tench, 10 *baioc*. per lb. Pike, from 12 to 15 *baioc*. Sturgeon, 5 or 6 *pauls* per lb.

MODENA.

Capon, 1 *paul*. Fowl, 40 *bol*. Turkey, 4 liv. Duck, 4 liv. Twenty eggs, 25 *bol*. Pigeons, 1 *paul* the pair.

RISE OF PRICES.

Milan.

In 794, a decree of the Senate and Diet of Frankfort, canon 4, that corn ſhould ſell at the following prices, no regard to ſcarcity and abundance:—*Moggio* of oats, 1 *denaro*; one of barley, 2 *denari*; one of rye, 3 *denari*; one of wheat, 4 *denari:* proportion 1080 to 1.

In 835, hogs, 20 *denari.*

In 857, one pound of ſilver, *lira*, 20 *ſoldi* of 12 *denari*; one *denaro*, now at Milan, on compariſon of an antient *denaro*, of half a *paolo*, was as 1 to 90; for 90 *denari* make half a *paolo*. The value of ſilver now, to that of antient times, as 1 to 12; therefore it is 1 to 1080 *.

In 975, *un ſtajo di vino*, 1 *denajo*; *un moggio di frumento*, 4 *denaji*; *un carro di legna*, 1 *denajo*, equal to 18 liv. at 1 to 1080 †.

In 1152, rye and panic, 3 liv. the *moggio*; 1 *denaro* equal to 130; conſequently 3 liv. is equal to 13 liv. 10*ſ.* 10 *den.* ‡

In 1165, 500 hogs, each 6 *ſoldi*; which now we muſt call 65 liv. each ‖. Cart load of wood, drawn by a pair of oxen, 12 *denari*; equal now to 6½ liv.

In 1272, 1 *moggio* of wheat, the common price, 19 *ſoldi*. Millet, 12 *ſoldi*; and this, to the money of the preſent time, is as a livre for a *ſol*; that is, wheat, 19 liv. and millet, 12 liv. §

In 1315, 1 *ſoldo* for a maſs, equal to 20 now; 1 *fiorino d'oro*, 30*ſ.* now 60 liv. as 1 to 40: the *fiorino d'oro* antient, and the preſent *zecchino*, the ſame thing. From this time to the preſent, the proportion of the money of thoſe times to the preſent, is as 1 to 4 **.

In 1402, the *fiorino o ducato d'oro*, worth 42 *ſoldi*, equal to 16 liv. 8*ſ.* at preſent ††.

Bologna.

The prices of every thing are now, at Bologna, from 10 to 15 per cent. dearer than ten years ago; here attributed to the increaſed plenty of money, from a riſe of the price of the products of the country, hemp and ſilk ſelling much higher. Twenty years ago, hemp was at 30 *pauls*, now at 50. And in Tuſcany, the prices of every thing doubled ſince the free corn trade.

* *Giulini, Storia di Milano*, vol. i. p. 268. † *Ib.* vol. ii. p. 380. ‡ *Ib.* vol. v. p. 527.
‖ *Ib.* vol. vi. p. 332. § *Ib.* vol. viii. p. 254. ** *Ib.* vol. x. p. 87. †† *Ib.* vol. xii. p. 63.

It

It is worthy of the reader's obſervation, that the general prices of proviſions, and of *living*, as it may properly be called, have riſen, perhaps, as much in Italy, as in any country of Europe; certainly more than in England, as I could ſhew by many details, if they were conſiſtent with the brevity of a traveller. A fact of ſo much importance, would admit of many reflections; but I ſhall obſerve only, that this ſign of national proſperity, (and I believe it to be one), is not at all confined to the countries in the poſſeſſion of extenſive manufactures, and a great trade, ſince we find it in thoſe that have none.

I ſhall not enlarge upon it, but barely hint, that the poſſeſſor of a landed eſtate in Lombardy, has raiſed his rents, to the full, as much in the laſt ten, twenty, thirty, or forty years, as his brother landlord has in England, who has bleſſed himſelf with the notion, that manufactures and commerce have done more for him, than for any other ſimilar claſs in Europe. It is very common in the Engliſh parliament, to hear the deputies of our tradeſmen expatiate on what the immenſe manufactures and commerce of England have done for the landed intereſt. One fact is worth an hundred aſſertions: go to the countries that poſſeſs neither fabrics nor commerce, and you will find as GREAT a riſe perhaps in the ſame period.

SPAIN.

SPAIN.

SPAIN.

CULTIVATION, &c.

THE vale of Aran* is richly cultivated, and without any fallows. Follow the Garronne, which is already a fine river, but very rapid: on it they float many trees to their ſaw-mills, to cut into boards; we ſaw ſeveral at work. The vale is narrow, but the hills to the left are cultivated high up. No fallows. They have little wheat, but a great deal of rye; and much better barley than in the French mountains. Inſtead of fallows, they have maiz and millet; and many more potatoes than in the French mountains. Haricots (French beans) alſo, and a little hemp. Saw two fields of vetches and ſquare peaſe. The ſmall potatoes they give to their pigs, which do very well on them; and the leaves to their cows; but aſſert, that they refuſe the roots. Buck-wheat alſo takes the place of fallow, many crops of it were good, and ſome as fine as poſſible.

The whole valley of Aran is highly peopled; it is eight hours long, or about forty miles Engliſh, and has in it thirty-two villages. Every one cultivates his own land. A journal of meadow ſells in the valley for 800 liv. irrigated, but by no means ſo well as in the French mountains, nearly an arpent of Paris, which is ſomething more than an Engliſh acre. The lower arable lands are ſold for 500 liv. or 600 liv.; the ſides of the hills proportionably; and the higher lands not more than 100 liv. Their crops of all ſorts, vary from 2½ to 3 quarters Engliſh the acre. Hay harveſt no where begun.

* The route in which theſe obſervations were made, is marked in the journal inſerted in the firſt volume; alſo the dates.

The mountains belong, as in the French Pyrenees, to the pariſhes; each inhabitant has a right to cut what wood he pleaſes for fuel and repairs, in the woods aſſigned for that purpoſe; others are let by leaſe at public auction, for the benefit of the pariſh, the trees to be cut, being marked; and, in general, the police of their woods is better than on the French ſide; when woods are cut, they are preſerved for the next growth.

Have ſcarce any oxen; what few they kill, they ſalt for winter. Taxes are light; the whole which a conſiderable town is aſſeſſed at being only 2700 liv. which they pay by the rent of their woods and paſtures let: but if calculated by tailles, houſes, &c. and including every thing, the amount would be about 3 liv. a year, on a journal of 600 liv. value. This is the proportion of an acre of land worth 30l. paying 3s. a year, in lieu of land and all other taxes.

Coming out of Veille, ſee to the right ſome of the moſt ſtoney land I have ever beheld, yet good hemp and buck-wheat were growing on it. In the hedges, many of the plants common to them in England. The paſtures on the mountains good, quite to the ſnow; but the low meadows not watered with the attention given them by the French in their Pyrenees. Paſs ſeveral of the thirty-two villages of the valley of Aran; population very great, for they croud on each other; and this reſults here from the diviſion of property, and not from manufactures, which have more than once been ſuppoſed the only origin of great population.

Much millefolium here, and other plants common with us. Plough with bullocks; all we ſaw, pale reddiſh, or cream-coloured, and with horns.

No wood at the top, but paſturage and rocks of micaceous ſchiſtus; met a great herd of dry cows and oxen, cream-coloured. It is remarkable, that a pale reddiſh cream-colour holds from Calais quite acroſs France hither, with very little variation.

Flocks of ſheep, and a penn for oxen and cows—the latter milked for cheeſe. Plough with oxen in yokes and bows, as in England, and not yoked by the horns as in the ſouth of France. Come to fallows (which is a point of worſe huſbandry than we have ſeen for ſome time), manuring by aſſes, loaded with baſkets. The trees here (pines) are finer than on the French ſide; they are all cut for the Tolouſe market, being carried over the mountains, and floated down the Garronne; from whence we may draw concluſions on the comparative demand of the two kingdoms. Land here ſells from 400 liv. to 500 liv. the journal.

Come

Come to the valley d'Eſteredano, where wheat and rye are cut. Every ſcrap on the deſcent is cultivated; an extenſive ſavage view of mountain, with patches of culture ſcattered about the declivities: but fallows are found here.

Paſs Rudaſe, on the top of a rocky mountain, come preſently to vines, figs, and fruit trees; ſnow in ſight. As we deſcend to the vale, every ſpot is cultivated that is capable of being ſo.

Croſs the river to Realp; about which place is much cultivation, as the mountains ſlope more gently than hitherto. Hedges of pomegranates in bloſſom. The town is long and has many ſhops. Hemp is the great object in it; of this, they make ropes, twine of all ſorts, bags, and have ſome looms for converting it into cloth. Corn and hay all carried on panniers.

Paſs Sort, a vale ſpoiled by the river, which exhibited the depredations of the Italian rivers, ſo excellently deſcribed by my learned friend, Mr. Prof. Symonds.

Hitherto, in Catalonia, we have ſeen nothing to confirm the character that has been given of it; ſcarcely any thing has a tolerable appearance. It is much to be queſtioned, from the intelligence, whether they have any ſuch a thing as a farmer who rents land: only patches of property—no maiz, and French beans very poor—fallows every where on the hills, and yet the rye after them miſerable. Old vineyards, of late, quite neglected, over-run with weeds, yet the grapes of a ſize that ſhew what the climate is; they are now as big as peaſe. In the towns every thing as bad; all poor and miſerable.

Riſing up the mountain, which is all of pudding ſtone, we find it is all cut into terraces, ſupported by many walls, with rows of vines on them for raiſins, not wine, mulberries, and olives: but here are fallows, and I thought I perceived traces of theſe hills having been formerly more cultivated than at preſent.

Paſs Colagaſe. Come to a regular vineyard, the rows twelve feet aſunder, the intervals alternate fallow and corn. The features of the country now begin to relax, the mountains are not ſo high, and the vales are wider. The leaves of a good mulberry-tree ſell for 44*ſ.* or 22d. Engliſh.

Many walnut-trees full of fruit. Much is tithed by the church: ſee much corn threſhing every where.

Croſs two pieces that had rye laſt year, left now to weeds, and will be under rye again next year; an extraordinary courſe. Mulberry-leaves never ſold, but if ſo, the price would be about 4½ liv. a tree. Cows all red. Land in the vale ſells from 20l. to 25l. Engliſh, the journal. The road leads up Monte Schia,

the whole of which conſiſts of a white ſtone, and argilaceous marl. Snow on the diſtant mountains.

Look back over a great proſpect, but totally to the eye without wood. Croſs a hill to another great vale, where is much, and ſome rich cultivation, as the hills are not ſteep, but ſloping.

Paſs in ſight of St. Roma, near it the road leads by a ſmall round lake, but it is on very high ground, no hills near it; it is ſaid to be very deep. Here they were hoeing a barley ſtubble, juſt ploughed, to form ridges, on which they ſow French beans. This diſtrict is called that of ſhells: millet juſt up; paſs a large waſte almoſt entirely covered with lavender; corn on a part of it; but after a crop, they leave it to weeds to recover again. Here alſo they practiſe the alternate huſbandry of one bed, or broad-ridge, corn, and another fallow. Plough with cream-coloured oxen. In breaking up the waſtes here, they cut the ſpontaneous growth to dry, then pile it into heaps with the earth pared and placed on it; this is all burned; we ſaw heaps ready to be burned to the quantity of five hundred loads an acre: but the crops are wretched for many miles, ſcarcely the ſeed again.

In our inquiries, meet with ſome traces of what, in France, are called *Metayers*, that is, a ſort of farmers who cultivate the land for half the produce; the landlord taking one half, and the tenant the other.

For two hours and a half, paſs a waſte mountain covered with ſhrubs, and ſcattered with ever-green oaks, and lower down, the evident remains of old terraces, which have once been cultivated, but now over-run with weeds. To Fulca; the ploughs here have all long beams, as in the ſouth of France, which reach to the yokes of the oxen, and conſequently they have no traices; two ſmall ſticks form the mould-board; they plough all flat.

In this diſtrict, not one acre in an hundred cultivated, all rocks, ſhrubs, and weeds, with patches of wretched oats on the mountain ſides. The road leads up one which is all of ſtone, covered with roſemary, box, brambles, &c. As the top break at once on the view of a deep vale, or rather glen, at the bottom of which, a muddy river has ſpoiled the little land which might have been cultivated. The hills are ſteep, and all is cultivated there that could be ſo, but the quantity very ſmall.

Deſcend into a very rich vale, and to the town of Paous. There we ſaw many perſons winding ſilk, the cocoons were in warm water, and wound off by a well-contrived reel, ſomething different from thoſe uſed in France.

Prices

Prices.

Bread, 3*ſ.* per lb. of 12 oz.
Mutton, 6*ſ.* per lb. of 48 oz.
Pork, 15*ſ.* per lb. of 48 oz.
Bottle of ſweet white wine, 5*ſ.*
Bottle of ſweet red wine, 2*ſ.*

Here they were threſhing, by driving mules around on a circular floor of earth, in the open air; a girl drove three mules round, and four men attended for turning, moving away the ſtraw, and ſupplying the floor with corn. Their crops are all brought home by mules or aſſes with panniers; met ſeveral; they each carried ſix ſheaves, equal to twenty common Engliſh ones; where roads are bad, this is the only way in which it can be done.

Paſs a great waſte of argillaceous marl, in which are ſtrata of talc:—much of it a ſoft white rock; the ſtrata in ſome places clear and tranſparent, ſhining, break in thin flakes; the country for many miles waſte, ſo that there are not more, I gueſs, than one acre in two hundred cultivated.

More deſerts for ſeveral miles. Some alternate fallow huſbandry between vines, and the crops ſo contemptible, that they produce not more than the ſeed. Paſs ſome vineyards ſurrounded on every ſide by deſerts; no water, and yet the vines and grapes are of the moſt beautiful luxuriance; from which I conclude, that immenſe tracts of theſe waſte lands, might be applied with equal profit, if there were men and capitals enough in the country.

Meet a farmer, who pointed out to us a piece of land, containing exactly a Catalonia journal, from which, it appeared to be pretty nearly the ſame meaſure as an Engliſh acre. They ſtack their corn by the threſhing floor, drive mules, &c. around upon it, and draw the ſtraw, when cleared, with ropes, by a mule to the ſtack, in which it is depoſited for winter uſe.

To Beoſca, moſtly deſert hills, but ſome broad vales, which are cultivated; about that place, many mulberries, vines, and corn, but all the laſt gained by fallow. A farmer here, pays a ſeigneur, who lives at Barcelona, 2000 liv. a year for his farm, which is reckoned a large one. Through all this country, they collect from every waſte ſpot, amongſt their cultivated lands, ſhrubby wood and weeds, with which they burn heaps of clods and earth, and ſpread the aſhes on the fallow as a manure for corn.

There ſeems every where to be incloſures ſufficient for aſcertaining diſtinct properties, but not for ſecurity againſt any ſort of cattle. No where any wood

to

to be ſeen, except fruit trees, olives, or ever-green oaks, which are almoſt as ſad as the olive; altogether, nothing for beauty of landſkip. The hills all rocks, and the vales vines, ſcattered with thoſe trees. Some new plantations of vines. Towards Toorà, the country is much more cultivated; the ſides of the hills covered with olives. The vale has many mulberries, and much tillage; and for ſome miles paſt, there are many ſcattered houſes, which has not been any where the caſe before: remarked one great improvement, which was a vineyard, with vetches ſown in the alternate huſbandry between the rows, inſtead of a fallow, to be followed by corn.

Leave Calaff.—Crop and a fallow; ſome vetches; much cultivation; and better corn than we have in general met with; ſome ſown in ſquares, as if in cluſters, but could not learn the fact. In ſome parts, many vetches inſtead of fallow; they are planted by hand, and wheat ſown after. The ſoil, a good adheſive loam, brown with a reddiſh hue, better than the white land, which travelled with us ſo long yeſterday: moſt of the corn cut.

Great waſte, and mount a hill, from whence an extenſive view; all the country alike, no wood; and not one acre in ten cultivated. Paſs four or five cream-coloured bullocks, and one or two blood-coloured. I note them, having ſeen ſo few in ſo many miles.

French beans, eighteen inches by twelve; a good deal of cultivation; but vaſt waſtes, and country of a rocky, ſavage aſpect; many pines, but poor ones. Within four hours of Montſerrat, vines at ſix feet aſunder, the firſt we have ſeen planted in that manner, which ſhews the proprietor content with having one product only on the ground.

Waſtes continue; not one acre in a hundred cultivated. All broken country, and ſcarcely any vales of breadth.

At the bottom we came again to olives. Meet two very fine cream-coloured oxen, which the owner ſays would ſell for about eighteen guineas; feeds them with ſtraw, but gives oats or barley when they are worked; they are in ſuch good order, that the ſtraw muſt either be much more nouriſhing than ours, or their work very light indeed. From the marks in the pine-trees, conjecture that they draw reſin from them.

Paſs Orevoteau, where is a hedge of aloes about four feet high. A gradual deſcent, for ſome time, on a wretched ſtoney deſert, of nothing but aromatic plants, thin, and ſcattered with the diſmal ever-green oaks, more dull and diſagreeable, if poſſible, than the olives.

Near

Near Eſparagara, vines at five or ſix feet, which cover the ground; red loam, mixed with ſtones. This town is the firſt manufacturing one we have met with, or which ſeemed to be animated with any other induſtry than that of cultivation. The fabric is woollen cloths and ſtuffs. Spinners earn 6*ſ.* a day, and food. Carders, 11*ſ.* They have alſo many lace-makers, who earn 9*ſ.* a day. Theſe are Spaniſh money; their *ſol* is ſomething higher than the French, which is our half-penny.

Fallow every where, yet many of the ſtubbles full of weeds. Corn yet in the field, and poor. Some vines promiſcuous, at four feet; ſome in rows at ſix feet. Country diſagreeable; many beds of torrents, without a drop of water, and ſhocking to the eye. Apricots, plumbs, melons, &c. ripe, ſold in the ſtreets, from the open ground. A pair of very fine cream-coloured oxen, 24l. Engliſh: the amazement is, how they can be kept in ſuch order, in a country ſo arid and deſert, and that has not a pound of hay in it.

The country now is far more populous and better built: many vines and great cultivation, but with fallows. The ſoil all a ſtrong red loam; a way cut through a vineyard of this ſoil, which ſhewed it to be ſeven feet deep; at the bottom, was a crop of fine hemp; indeed, the ſoil to the eye, was as good at the bottom as on the ſurface.

They plough with mules abreaſt, without a driver, having a line for reins, as in England; the beam of the plough is long enough to reach to the circular iron, about nine inches under the yoke, to which the mules are collared. The yokes are like thoſe in which oxen are worked, only with collars inſtead of bows. This method, which is very common in France alſo, has both its advantages and diſadvantages; it will be a light draught, when the pitch of the beam is proportioned to the height of the mules, but if the ſhare muſt be raiſed or lowered according to their height, it will be bad both for the land and the animals. To have the line of traction, from the draught to the body of the plough, is not quite correct, but it is much better than the common plough beams, made either too long, or too ſhort: in this caſe, the length of the beams is aſcertained: but the chief origin and intention of it, is cheapneſs. The mould-board of the plough here, has no iron on it, and is fixed to the left ſide; the ſhare is double, as if to work with a mould-board on either ſide; this is a great fault; only one handle. It did its work tolerably. The wheat in ſheaves is yet in the field, but the ſtubbles all ploughed, a narrow ſlip only left, on which the wheat remained: this ſhews good attention to the ſucceſſion of crops.

Prices

Prices of Proviſions, &c. at Barcelona.

Bread, 4*ſ.* and a fraction, per lb. of 12 oz.
Mutton, 22½*ſ.* per lb. of 36 oz.
Pork, 45*ſ.* per lb. of 12 oz.

That of the poor people, very little leſs; but they buy the ſoldier's bread, which comes cheaper; they live very much on ſtock-fiſh, &c.

Hams ſometimes 3 or 4 *peſettos*, or ſhillings, per lb. of 12 oz. Wine, 4*ſ.* or 5*ſ.* the bottle.

Common day wages, are 25*ſ.* French; ſometimes riſe to 33*ſ.*; the very loweſt, 22½*ſ.* Stocking weavers earn 33*ſ.*

Cream-coloured oxen in carts, their horns ſawn off to the length of ſix inches, two yoked abreaſt, and one mule before. A pair of good oxen ſell at 25l. Engliſh. Vale from a quarter to half a mile broad.

All the corn in the country, is left in the field till it is threſhed, and they ſay it never takes hurt. A hill cut through, thirty feet deep, for the road, and walled on each ſide. The ſea cloſe to us on the right, all the way; and the vale I ſpeak of, is between that and the hills: ſome of them are ſandy, and planted with vines, which yield, per journal, four charges, the charge ſelling at 13 or 14 *peſettos*, and a journal for 300 Spaniſh livres; this is the journal, ſelling for 35l. 8s. 9d. and producing about 2l. 14s. very inadequate to the value of the land; there are great quantities of fruit-trees of all ſorts.

At Gremata; after which, a vale for a mile and a half, or two miles, the ſoil ſandy; and much cultivation. On the hills, many vines. Some corn without fallows; it is all cut, but not carried, and the land all ploughed.—Vines.

A wheat ſtubble ploughed up, and the land ſown with buck-wheat, which is now up.

Part of a vale highly cultivated, but a great part waſte, though on the ſame level to the eye, but much ſpoiled by a torrent, for a quarter of a mile broad; it is entirely ruined, yet there is no water now, nor any channel, all being level; in ſuch caſes as theſe, and indeed in moſt others, induſtry, united with good capitals, would remedy the evil. Eight men working a ſandy field, by way of digging with an inſtrument very common here, a ſort of hoe, ſixteen inches long, and nine broad, with a handle ſo ſhort, that the body is bent very much in uſing it. Vale two or three miles broad, and unites with an opening in the mountains. French beans often under maiz, but that crop much thinner,

thinner, and nothing gotten by it. Some very fine orange-trees, near twenty feet high, large ſtems, and thick round umbrageous heads. All this vale before Maturò, is under a very fine cultivation. They have much lucern; and an article of attention, I had not before obſerved, was, tubs made on purpoſe for carrying the riddance of privies and urine to their fields.

Hemp yields ten quintals the journal. Vineyards give three, four, and five charges of wine per journal, and ſell for 200 or 300 Spaniſh livres the journal: other lands, not irrigated, from 100 liv. to 150 liv. For above a league, vines on ſand; very little other cultivation; the vale is two miles broad; ſells at 150 liv. Spaniſh, the journal; on the hills, and near the ſea, vines; mountains cultivated, imperfectly, almoſt to the top; but there is much waſte. Houſes ſcattered every where.

The cultivators are *metayers*, that is, they pay a portion of the crop inſtead of rent: the produce is divided into three parts; two for the farmer, and one for the landlord, in which caſe, the farmer is at every expence whatever. Some vineyards are let at from 15 to 40 *peſettos*; I have not met any where in France with vineyards let, for they are all in the hands of the proprietors. Land in general lets from 15 liv. to 35 liv.

Come to a great cultivated vale, but no water, or but little; maiz, ſix inches to two feet high, in ſquares, on land from which the corn has been cleared; the account we received. I ſuſpect the higheſt to be previouſly ſown in a bed, and tranſplanted as ſoon as the land was ready to receive it; millet alſo after corn; the ſoil a rich black loam.

Paſs Malgra. Vale two or three miles broad; vines and cultivation. A great deal of fine maiz, called, all over Catalonia, *Miliæ*. I found the ſame name for it afterwards in Languedoc, where they ſpeak the ſame language as the Catalans. Lets for 15 liv. one with another. Maiz is ſown, grain by grain, after corn; the ſoil a granite ſand. A thick woodland, all incloſed. Pomegranates make very fine thick hedges. Much wood and vines—no watering nor fallows—houſes ſcattered every where—ſoil ſandy, but good. Very bad ploughing—cream-coloured oxen. Incloſures become ſtill thicker. Poplars planted over ſome fields, and vines trained to them, and from one to another: reading accounts of this huſbandry in books, I had formed an idea, that it muſt be ſingularly beautiful to ſee feſtoons of vines hanging from tree to tree, but there is nothing either pleaſing or ſtriking in it, and the wine is never good for want of ſun, and owing to its being dripped on by another plant, which robs it alſo of its nouriſhment; corn is ſown under them, which is damaged ſtill more. Broad flat vale, formed of the ruins of granite.

Paſs for ſeveral miles in a vale, where the country has different features. It is all incloſed—much oak—a few vines, trained up trees. Soil bad. Two poor bits of meadow I noted, for they were the firſt I had ſeen bad in Spain. Many fields over-run with ſpontaneous rubbiſh. Maiz and harricots cultivated here together, as in many other quarters. Some ſcattered houſes. Much waſte on gentle hills that have vineyards on them, and would all yield that production, if planted. A ſloping hill of granite ſand, well cultivated. Vines, trained to oak and poplars, with many fruit trees. The price of wheat here is 15 or 16 *peſettos*, for the 3¼ *quarterons*, weighing 5¼ quarters, and each quarter 26 lb.; this is 143 lb. of wheat, coſting 15¼ *peſettos*, which will be 50s. the Engliſh quarter. Barley half the price.

Come to a great waſte, ſpreading over many hills, for ſeveral miles; to northern eyes, a moſt extraordinary ſcene. It is a thicket of aromatic and beautiful flowering ſhrubs, with very little mixture of any that are common with us. Large ſpreading myrtles, three or four feet high, and covered with their ſweet-ſcented flowers, jeſſamines, bays, and other ſhrubs, with which we croud our ſhrubberies, are here worſe nuiſances than heath with us, for we ſaw neither ſheep nor goats. View after this, a large plain, bounded by mountains, and ſcattered every where with houſes—a good deal of cultivated incloſure. But, on entering, find much waſte in this plain. Vines now form hedges, and ſurround the fields. Come now to cattle, of which we have hitherto ſeen very little; ſaw ſeveral ſmall flocks of ſheep, moſt of them entirely black, ſome without horns, others with, and curling round the ears. All the oxen cream-coloured; except two, with the necks and end of their tails black; all well made, and in fine order. Large breadth of corn, and ſome fields left apparently to graſs. I ſuſpect fallows.

The country ſtill thickly incloſed, ſome pieces of graſs, and a few of meadow, which are not burned, hot as the climate is. More cattle here than we have yet ſeen. They keep their ſheep and hogs (all black) together, and the girls, &c. who attend them, ſpin hemp.

Paſs Goronota; and many waſtes for ſome miles on gentle ſlopes; the ſoil good, but covered with aromatic ſhrubs; no cattle ſeen in any of them. Level vale with much culture, and much paſture: many large oaks on old double banks; alſo tall poplars: all incloſed, and like many parts of England, as maiz and vines are not here; a thick woodland. In this part, the ſoil is a deep, rich, brown, adheſive loam: the corn not carried, but the land ploughed and ſown with French beans. They have peaſe, beans, maiz, hemp, &c. without watering, and, that circumſtance conſidered, the crops are good. The ploughs

ploughs are drawn by cream-coloured oxen, guided by a line, and without a driver. Some meadows without water; with many quails. They are *metayers*, paying the landlord one-third of the produce; but not of *phang*, which is for oxen; *phang* is their name for clover; and this the firſt time we met with any information about it. It puzzled us much to diſcover, what *phang* could be; but I found, by accident, a plant of *trifolium alpeſtre*, and ſhewing it to a farmer, found, by his deſcription, that it was clover (*trifolium pratenſe*) beyond all doubt. They were now ploughing a wheat ſtubble, in order to ſow it directly with *phang*. Their culture of it is ſingular, and very good; it is mown for hay once in the ſpring, yielding a fine crop; the land directly ploughed, and planted with *monget*, which is their name for fallow-hoeing crops, ſuch as French beans, millet, peaſe, &c. This *monget* is kept very clean, and wheat ſown after it, which is off ſoon enough for a ſecond crop of French beans. A courſe with them is,

1. Maiz.
2. Wheat, and ſown after with clover.
3. Clover and French beans.
4. Hemp and French beans.
5. Wheat and millet.

Vines are here planted in eſpaliers; ſmall poles are laid on pegs driven into poſts, which ſtand at ſix or eight feet aſunder, and the vines trained to them; corn is ſown between the rows; good land, yet waſte join it. Many hedges are planted with the yellow-bloſſomed prickly acacia, which anſwers perfectly well for that purpoſe.

Within four miles of Gerona, huſbandry continues good. Trees have vines trained to them. Much cattle, mules, horſes, ſheep, and hogs, kept in the ſtubbles: fine cream-coloured oxen in the ploughs. The ſoil, fine deep reddiſh loam. Now reaping a crop of ſquare peaſe, three feet high, ſtout as lupines, with pods like that plant; all here, an incloſed woodland. Hemp, ſix feet high, and not watered. To the left of Gerona, mountain beyond mountain, branches of the Pyrenees, and very high; but ſeemingly a good deal of cultivation on them. Fine rich deep ſoil in the vale before Gerona; the ſame huſbandry—crops of corn, very fine, not carried, though all the land quite green with young millet; this extreme confidence in the climate, ſhews clearly what it muſt be.

A journal of the vale land ſells for 200 Spaniſh livres, or 23l. 12s. 6d. and lets at 8 liv. to 10 liv. that is, 1l. 1s. Engliſh; but none of it is irrigated. They do not tithe either lambs or other live ſtock.

Price of Proviſions at Gerona.

Bread, 3*ſ.* per lb. of 12 oz.; and excellent.
Beef, 10*ſ.*
Mutton, 6*ſ.*
Pork, 8*ſ.* per lb. of 16 oz.
Cheeſe, 20*ſ.* per lb. of 12 oz.

They have no mutton or beef, except what comes from France.

The poor live chiefly on vegetables, and a little pork: their labour, 20*ſ.* a day.

Leave Gerona.—Fine maiz, planted thin, with good cabbages under it: this is a ſyſtem which promiſes well; but cabbages here, are only for the people, and not for cattle. Three meaſures and a half make a journal, and a pair of oxen plough three meaſures a day; buy their oxen in the French mountains, at a year old. Their hills are either wood, or cultivation, but mixed with part rocky waſte. Croſs ſome hills, which contain a great deal of waſte, but ſee a broad valley to the right; all incloſed, and well cultivated; to the eye rich; houſes ſcattered.

At Marenia, iron, 4*ſ.* or 5*ſ.* per lb. of 16 oz. The road up a hill; twenty or thirty women giving it a winding direction, by levelling earth; on inquiry, find it is done by the communities, and that they earn nothing; hence it is by *corvees*. Enter a wood of cork-trees; many of them barked half way up; the texture of this tree is remarkable, it ſeems formed of layers of bark, one under another.

The country now generally cultivated; the fields ploughed, but have had a crop. Some well-planted olives, ploughed under. All the corn we ſee is wheat; as to barley, it was cut and threſhed the firſt week in June, and the land ploughed and ſown with ſomething elſe.

From Gerona to Calderoles, three hours and a half, generally cultivated; but waſtes ſcattered, and mountains every where in ſight. The courſe here, is,

1. Barley, left to weeds, &c. for cattle.
2. Wheat and millet, or French beans.
3. Oats or barley, and maiz for cattle.

No fallow, or *phang*; French beans are called *phaſols*.

Leaving Calderoles, the country all cultivated; many olives, and under them vines; all well incloſed; no waſte.

Paſs

Paſs Baſerà; a torrent has here deſtroyed a vale half a mile broad; paſs it by a ferry. Country now neither ſo rich, nor ſo well cultivated, as on the other ſide of that town. Maiz planted at ſix feet, and two rows; French beans in the intervals; olives ſcattered; but the maiz very poor under them. Country more poor and ſtoney, yet but few waſtes. Olives and many tall pines. Waſtes with pines; the ſea two miles to the right, and the ridge of mountains in the front, ſeems to end abruptly at it. Many vineyards, and planted with olives; all under culture, and well incloſed with acacia hedges; ſeveral with ditches to them.

The vale of Figuera bounded finely by the mountains; many olives and vines, and a good deal of corn; but neither ſoil nor cultivation equal to what have paſſed; the former is more of a ſtone braſh. Reach Figuera.

The 21ſt left Figuera, and breakfaſted at Jonquieras. Enter the bottom of the mountains very ſoon; paſs through many olive grounds; the trees are large, and ſtand about ſixteen feet aſunder; ſoil good red loam, but ſtoney; no watering. A quart of oil, 2¼ lb. of 12 oz. ſells, retail, for a *peſetto*. Olives bear only every other year. Our guide ſays, he knows a tree, in Arragon, which yields from 50 lb. to 80 lb. for a crop. In theſe twelve miles to Jonquieras, vines ſcattered all the way on the hills; ſome few olives; many cork-trees, latterly: much cultivation, but a good deal of waſte alſo. French beans in rows, and ploughed between with oxen. Soil all the way a granite ſand.

The firſt leading feature of the minutes, is the immenſe quantity of mountains, and other waſtes, which are found in every part of Catalonia. We travelled about three hundred and forty miles through the province, and may conclude, from what we ſaw, without any danger of being deceived, that not one acre in an hundred is under any ſort of cultivation; in ſuch groſs calculation, one would take care to be within the truth, and if I ſaid, not one in one hundred and fifty, I believe I ſhould ſtill be on the ſafe ſide of the aſſertion. When this fact is connected with the reputation which the province has, of being next to Valentia, the beſt cultivated, and, without exception, the moſt induſtrious in Spain, concluſions, very unfavourable to the ſtate and policy of that monarchy, muſt neceſſarily be drawn by every reader. The advantage of poſſeſſing the ſecond city of the kingdom, a place of great trade, and containing one hundred and twenty thouſand ſouls, is very conſiderable, and muſt have done much, to bring the province even to its preſent ſituation. At the ſame time, that theſe boundleſs waſtes were offending the eye, in every quarter, we could, in no part of Catalonia, condemn the people for want of induſtry; on the contrary, they ſeem very well to merit the character they have gained:

gained: the activity which is ſeen through all the towns upon the coaſt, and they are very numerous, and very populous, can hardly be greater, in a country ſubmitted to numerous feſtival days, by its religion: the fiſhery in all thoſe places is conſiderable, and attended to with an unabating ſpirit. The women and children make lace; and wherever the ſoil is good, or water conducted, cultivation is in a high ſtate of perfection. Even in the interior country, we ſaw, every where, ſigns of much induſtry; and, amidſt a poverty which hurt our feelings, we generally ſaw ſomething to convince us, that it was not the fault of the poor people, that greater exertions were not made. Thoſe interior parts depend entirely on their agriculture; and the height to which they climb the mountains, in order to find a ſpot tolerably level for cultivation, ſhews that their minds and bodies are ready for laborious exertions, whenever there is a proſpect of enjoying the reward. With ſo much induſtry among the people, to what are we to attribute the waſte ſtate of their country? The inquiries neceſſary for a complete inveſtigation of ſuch a queſtion, were not to be made by travellers: a longer reſidence would have been neceſſary; but a few circumſtances ſhould be mentioned, which are, probably, connected intimately with it.

Firſt, the poverty of the people in the interior country is ſtriking; their towns old, ill built, dirty, and wretched; the people ill dreſſed, and generally deficient in the wealth, beſt adapted to ſuch a country, cattle: in the higher Pyrenees, this is not ſo much the caſe; they have cattle, and are in every reſpect in a better condition, owing to the plenty which great commons give in a country of good paſturage, and where wood is in profuſion. The number of ſheep we ſaw in general, was not the twentieth part of what the waſtes, bad as they are for that animal, would maintain; and that of goats, ſo ſmall, as to indicate the ſame thing ſtrongly. This poverty, not being the effect of a want of induſtry, muſt reſult from a government inattentive to their intereſts, and, probably, oppreſſive; and from a total want of the higher claſſes reſiding amongſt them. Till we came to the rich country, near Barcelona, that is to ſay, in about two hundred miles, we ſaw nothing that had the leaſt reſemblance to a gentleman's country ſeat; thoſe who have eſtates let *in it are abſent*; thoſe we heard of, live at Barcelona; and the whole country is thus abandoned to the very loweſt claſſes; and the wealth and intelligence, which might contribute to its improvement, diverted into diſtant and very different channels; this is a great misfortune to the people, and which will long contribute to keep things in their preſent ſtate. To the ſame cauſe it is owing, that the roads, ſo eſſential in the improvement of a country, are left in a ſtate which precludes the uſe of wheel carriages; which, with the unnavigable ſtate of all the

the rivers, except for rafters of timber groſsly put together, cuts off that ſyſtem of reciprocal purchaſe and ſale, that interior commerce, which is the beſt a country can poſſeſs. Theſe are alſo evils, which the reſidence of men of fortune is the moſt likely to correct; and much above the power of peaſants and mountaineers. With all theſe diſadvantages, there are ſtill circumſtances which make it ſurpriſing, that more land is not cultivated. Vines and olives ſucceed very well on the pooreſt, and moſt arid ſoils; their growth and luxuriance, in ſpots ſurrounded on every ſide with waſtes, and in ſoils not better, yield a conviction, which leaves no doubt, that the adjoining lands would, if planted, give a ſimilar produce. The profit of doing it will not be ſuſpected, if the revenue and value of cultivated lands, on compariſon with the waſtes, be conſidered. Two points here, force themſelves on our notice; firſt, the want of capital for undertaking the work; and, ſecondly, the waſte being in all probability in poſſeſſion of abſent landlords, who will not give ſufficient encouragement to others to do what they neglect doing themſelves.

Where cultivation climbs up the mountain ſides, it is by ſmall proprietors, who purchaſe of the communities of the pariſhes the property of the land; wherever the ſoil is in hands that will ſell juſt the portion, which is in the power of a man to buy, great exertions are ſure to be the conſequence. There is no ſpur to induſtry ſo great, as the poſſeſſion of a piece of land, which, in a country where the means of ſubſiſtence are contracted for want of more diffuſive and more various employments, is the only comfortable dependence of a man, who wiſhes to be the father of a family. The pariſh that will ſell a waſte, at a moderate price, will be almoſt ſure to ſee it cultivated; but the great lord, who rarely, or never, ſells any of his property, unleſs ruin forces him to ſell the whole, is equally ſure of perpetuating the deſerts, which are the diſgrace of his country. He would let them, and perhaps upon advantageous terms; but it demands conſiderable capitals, and a very enlightened ſtate of agriculture, for ſpeculations of that ſort to take place; the only capitals, which can be found in Catalonia, for ſuch a purpoſe, are the hands of men willing to work; aided, perhaps, by ſome little ſavings, which have originated from the view of waſtes that are to be purchaſed. All that has been done, and it is much in ſome diſtricts, is to be traced clearly to its origin.

That theſe obſervations are juſt, will be confirmed by the prices of all the neceſſaries of life in that province; they have nothing very cheap; every article of conſumption is ſomewhat dearer than in France; and it is more than once noted, that all the meat they eat comes from that kingdom. Their mules are bred in France, and great imports of cattle and ſheep are common. This is a direct premium upon every ſpecies of rural induſtry, and its not having

having operated greater improvements, muſt be owing to the cauſes on which I have touched.

To cultivate their waſtes, to ſpread irrigation wherever it is poſſible to carry it, are the two firſt objects in Catalonian improvement; all others are inferior; they have, however, ſome which ought not to be neglected. Their wine and oil are objects of the greateſt importance; for it is by theſe, probably, that all the lower waſtes ſhould be improved, which are not capable of irrigation; to improve the manufacture of theſe two articles, in ſuch a manner as to increaſe the demand for them, would be one great means of accelerating the cultivation wanted; they are both bad; the wine is thick, muddy, and poiſoned by the borachio; and the oil is generally rancid; both would otherwiſe be excellent; to remedy theſe defects, and force thoſe commodities, by their merit, into commerce, would tend powerfully to enrich the province; and to enrich it in the very beſt method, by one, which would, at every ſtep, accelerate its improvement. Wool is another commodity, which is of conſiderable value, and might be produced in an infinitely greater quantity than at preſent.

The reader will not expect from a traveller, who throws his ideas on paper amidſt the movements of a journey, that correct attention which leaves nothing untouched; I attempt no more than to glance at ſome prominent features, and to delineate them roughly; to draw into one point of view, the concluſions which ought to be the object of all uſeful travels, it would be neceſſary to ſee much more, to reſide longer, and to travel with greater advantages than I poſſeſs. This little journey has been very far from affording ſuch materials, but it has not to me been barren; it has removed many falſe ideas from my mind, which the writings of men, who have either been inattentive to, or ignorant of agriculture, had placed there, relative to this province; and I know better how to appreciate the praiſes or condemnation, which are given of this or other countries, in ſimilar climates.

There are many perſons who travel, for enjoying the beauty of proſpect;—and there are others, who ſeek for a reſidence better adapted than their own, to their health or their fortune; to ſuch I will add a few words.——To the taſte of a man that is fond of a country in a northern climate, there are few objects more pleaſing to the eye, or more refreſhing to the imagination, than the natural landſcape ſcenes of a well-cultivated and well-peopled country. Theſe have, in England, features that charm and inſtruct. Inequalities of country, not too abrupt; woods that preſent rich maſſes of ſhade; rivers that offer the contraſt of their ſilver boſoms, gliding gently through vales of conſtant verdure, which are neither hurt by their rapidity, nor rendered marſhy by

by their ſluggiſhneſs; incloſures, which mark the value and the culture of the ſoil; and ſcattered habitations of the poor, clean and comfortable, mixed with the houſes of farmers, in a ſtate of eaſe and proſperity; and with the ſeats of gentlemen, who find ſociety and liberal pleaſures, without deſerting the fields which gives them their ſupport, for the profuſion and waſte of a capital. No philoſophical eye can view ſuch a ſcene without pleaſure, nor contemplate it without inſtruction. Such a ſcene is not to be met with in Catalonia; the latitude which ſpreads over their heads a clear expanſe of blue, which lightens up in their heavens a blazing ſun, with rays of which we have no feelings, which bids the perfumes of the eaſt breathe over their waſtes, and gives to their gardens a profuſion of moſt delicious fruits, forbids it. Infinitely the greater part of the province is rock or mountain, without verdure, and without other wood, than ever-green oaks, olives, or pines; and no where, except in the Pyrenees, with any maſſes of ſhade that give effect to the proſpect. The only verdure in the country, tolerably durable, is that of the vineyards. Great waſtes are covered with ſhrubs, which, however beautiful, when detached, have very little effect in a general proſpect. To look for neat cottages, or good farm-houſes, is to look in vain; and to find the landlords of the country, you muſt go to Barcelona and Madrid. The deficiency of verdure, deſtroys half the idea of rural beauty; the eye, dazzled with the unvarying ſplendour of the ſolar beams, and tired with wandering over arid heaths, aches for cooler and more quiet ſcenes, and languiſhes to repoſe on the verdant mead. When watered, where alone there could be verdure, all is a crowded ſcene of trees, and corn and hemp; of glorious fertility, but forming the good feature of a landſcape, only when looked down upon from an eminence immediately above it. Hence, I own, that in reſpect of beauty of proſpect, I muſt prefer many parts of France, and more in England, infinitely to any thing I ſaw in Catalonia, a country whoſe moſt ſtriking features are its rocks.

I take the climate to be equal to any thing that is known in the world; I was there in the hotteſt ſeaſon of the year, and travelling twelve and fourteen hours a day, yet bore it without any ſuch oppreſſion as could give an idea of its ever being inſupportable; and both men and women ſtood their field buſineſs through the day, except two hours, which they take for repoſe. Suppoſing, however, that July and Auguſt are eſteemed much too hot, ſtill the reſt of the year muſt, from every circumſtance we heard, be delicious—they ſpoke with rapture of the pleaſantneſs of the month of May; and no doubt but the winter muſt be a charming ſeaſon, where ſuch vegetables as green peaſe are gathered through every month of it, from the open fields. In regard to wholeſomeneſs for invalids, one circumſtance ſhould be conſidered, which may be applied

equally to all watered arable lands: I ſhould conceive, that they muſt of neceſſity, in ſo hot a climate, be very unwholeſome; and little better than rice-grounds, which are known every where to be peſtiferous. The land is kept conſtantly watered, it is therefore little better than an earth ſponge, or maſs of mud; innumerable fibres of vegetables are mixed with it; the heat, the moiſture, and the rich ſoil form a putrid fermentation, which gives health and luxuriance to vegetables, but muſt fill the air with phlogiſtic effluvia, I ſhould apprehend far from wholeſome to the human body. This is a conſideration for phyſicians, and for thoſe whom they ſend to ſouthern climates.

IRRIGATION.

THE proſpects down the vale of Aran beautiful; it is without fallows, *fine* hemp inſtead of them. Look down on the town of Eſteredano, around which, culture riſes pretty high up the mountains. All the corn cut, is reaped, and bound in ſheaves—Walnuts. Deſcend into the vale—Figs. Watered meadows. Raygraſs predominates; much common clover, white clover, trefoil, vetches, &c. A cauſeway for irrigation acroſs the vale; the meadows are uncut, and have 2½ tons per acre, on an average; the corn all through, 3 quarters an acre. Paſs a rich flat common; part of this vale fed by horſes, mules, hogs, aſſes, and a few oxen.

Advancing—what meadows there are, are well watered; as are French beans, hemp, and a ſmall quantity of lucern.

Leave Poeblar; they have lucern, but not good; the gardens are all watered; mulberries; prices of ſilk this year, 18 liv. the pound. Cultivation all around, among the olive trees; but it is corn one year, and fallow another. Croſs the river, which is here ſixty yards wide. Wheels for raiſing the water of it into the gardens, ten or twelve feet high; they are of a very ſimple conſtruction; ſomething like the common water-wheels of a mill, but made very light; the fellies of the wheel are hollow in diviſions, taking the water in through holes at equal diſtances, and as the ſtream turns the wheel, it delivers the water out of the ſame holes at the top of its revolution, into a trough, which conducts it where wanted; it is cheap, ſimple, and effectual. Many peach-trees ſcattered about the gardens, &c. Mount the hills; paſs two

two large tracts, of above one hundred acres, deſtroyed by the torrents. Great quantity of pudding-ſtones. The mountains around are of intereſting and bold features. The country in general here has a great mixture of cultivation and waſte; it is for ſome ſpace pleaſing enough to the eye, but the produce is, I believe, very low; we ſaw many oats, and ſcarcely any that will produce more than a quarter an acre. They have no meadows; and I ſhould obſerve, that our mules have not found ſuch a thing as hay; ſtraw and barley are their food; in all thoſe ſpots which would give graſs, corn and legumes are ſown, as more neceſſary and more valuable; and this, I am told, is the caſe over all Spain, lucern excepted.

Near Monte Schia—they have here poor crops of flat barley: of water, they know well the value, a ſpring of any account being carefully conducted into a reſervoir, and let out at ſeven in the morning and at night to water.

Advancing—there is ſome good hemp, watered; and I ſee enough of the country to find that water is all in all; where that is to be conducted, they get crops that pay well; but where no water, they have not the power or the knowledge to turn the ſoil, however good it may be, to a profitable account; fallow the only effort, and the ſucceſs every where miſerable.

Croſs a fine ſtream with many acres under it, yet no watering; the reaſon I cannot tell, unleſs the land is common; if ſo, it is eaſily explained.

The ſoil ſtoney; the large, of the pudding claſs; but, in the midſt of this arid wretched deſert, come to a ſpring, which riſes out of the earth into a ſmall reſervoir, and is immediately uſed for irrigation; maiz, hemp, cabbages, beans, and all fine; the contraſt ſhews the aſtoniſhing effect of water, and that in this climate, the ſoil is the leaſt object—the ſun and water do the whole.

Paſſing Paous; every thing changes the features; the vale, on compariſon with thoſe we have ſeen, is wide, and alſo flat, and water plentifully conducted in canals, which paſs every quarter, ſo as to let into the field of every proprietor; having paſſed above one hundred miles of dreary mountain, this vale, ſo great was the contraſt, had the appearance of enchantment; the care and attenton given to irrigation, cannot be exceeded. The land is prepared for it, by levelling with a nicety as curious as for making a bowling-green, and this (conducting the water excepted, which is common to every one), is the only expence: this general level is divided into oblong beds, from ſix to eight feet wide, by little ridges of fine mould, drawn up nicely with a rake every time the ground is ſown, in order that the water may not ſpread over too much at once, in which

caſe, the irrigation would be unequal; there would be too much of a current at the part where the water enters, a circumſtance of no great importance in watering graſs land, but which would be miſchievous in arable; ſmall trenches take the water from the carrier canals, and paſſing by the ends of thoſe beds, the farmer opens them at pleaſure, to diſtribute the water where wanted. As ſoon as the land is ſown, it is watered, and periodically, till the plants are up; moderately while they are young; but every day, and ſometimes twice a day, when full grown: the effect is ſurpriſing, and infinitely exceeds that of the very richeſt manures that can be ſpread upon any land. The rapidity of vegetation is ſo great, that there are but few crops, which demand all the ſummer for coming to perfection; I believe hemp is the only one; that plant is now five to ſeven feet in height, and of ſo thick a luxuriance, that nothing can be imagined finer. The rye ſtubbles are ploughed and ſown with French beans, which are up and watered. After hemp, wheat is the crop.

Watered maiz here, ſeven to nine feet high. Every time we ſee any irrigation, we are ſtruck more and more with the importance of water, even on ſoils which are apparently mere rock, and on the moſt arid deſerts, it gives at once the utmoſt luxuriance of vegetation. Vines and olives, however, ſtand in no need of it, but thrive admirably on the drieſt ſoils without it: not one acre, however, in twenty, is planted with them that might be.

Come to more watered grounds; gardening and huſbandry mixed; peaches; apples; ripe pears; pomegranates in the hedges, as large now as walnuts in the ſhell; onions and lettuces in great plenty. Some watered lands have been ſold at 1300 liv. the journal.

Near Martorelle is a fine irrigated valley; French beans, ſeven feet high. Good lucern, cut three or four times a year; onions, cabbages, and lettuces; but the hemp, every where a principal crop, not great. The land all formed into the beds for watering; which I have already deſcribed.

Exceeding fine hemp, watered. Maiz thick, and in ear. Many fine and tall poplars by the river.

They are now (July) ploughing their ſtubbles for French beans. Their courſe is,

1. Hemp.
2. Wheat; and after wheat, French beans.

Three crops are therefore gained in two years. The products good. Very fine mulberries. A journal, which is here alſo about an Engliſh acre, of rich land in the vale, not watered, ſells for 500 liv.: watered, for 1000 liv.

Leaving

Leaving Barcelona, enter immediately an extraordinary ſcene of watered cultivation, and which muſt have given the general reputation to the province. Nothing can well be finer. The crops in perpetual ſucceſſion—and the attention given to their culture great. Not the idea of a fallow; but the moment one crop is off, ſome other immediately ſown. A great deal of lucern, which is cut four, five, ſix, and even ſeven times in a year; all broadcaſt, and exceedingly thick and fine, from two and a half to three feet high, when cut. It is all watered every eight days. We meet many mule loads of it going into the town, each 450 lb. or 4½ quintals, which ſells for 4 *peſettos*, or near 4s. Engliſh; ſuppoſe it 4s. for 500 lb. it will not be difficult to calculate the produce of an acre. All I ſaw would yield 10 tons, green, per acre, at each cutting, and much of it a great deal more; let us ſuppoſe five cuttings, or 50 tons per acre, at 16s. a ton, this is 40l. ſterling per acre. It is to be remembered, that the growth we ſaw, was the third, perhaps the fourth, and that the firſt and ſecond are in all probability more conſiderable, it will not, therefore, be thought any exaggeration to calculate on five ſuch. I by no means aſſert that lucern yields always, or generally ſo, as I ſpeak only of what I ſee. I have very little doubt, however, but this is the amount of that portion, which is thus cut and ſold to Barcelona; poſſibly one-third, certainly one-fourth, is to be deducted for the expence of carriage; this is the moſt difficult part of the calculation, for it depends on how many times the mule goes in a day, which muſt alſo depend on the readineſs of ſale, and other circumſtances. The profit is, however, amazingly great. All the other lucern I have any where ſeen ſinks, in my idea to nothing, on compariſon with the vaſt and luxuriant burthens given by theſe watered grounds. The fineſt crops I have known in England, are drilled, but there is a fallacy to the eye in the drilled crops, in proportion to the diſtance of the rows; they appear thick while they are really thin, but in broadcaſt ones, which ſatisfy the eye, there is no deception; and theſe immenſe burthens, through which the ſcythe is with difficulty moved, produce more at one cutting, than two feet drills would at three, with the advantage of the herbage being finer and ſofter. But weeds in England and Catalonia are two very different things; it well deſerves, however, with us, a better trial than it has yet generally received; I have viewed broadcaſt crops; particularly Rocque's, on a very rich garden ſoil; and Dr. Tanner's, on a common turnip loam, which, though not to be named with the Spaniſh, were certainly encouraging.

Hemp, through all theſe watered lands, is the predominant crop, it is ſeven feet high, and perfectly fine; ſome of it is already harveſted. I am ſorry to ſee that the watered part of the vale is not more than a mile broad. Indian fig, called

called here, *figua de maura*, grows ſix or ſeven feet high, very branching and crooked, the arms at bottom as thick as the thigh of a common man; thoſe and many aloes in the hedges. Every garden or farm has a ſmall houſe, with a reſervoir for water, which is filled in moſt by a water wheel, with jars around the circumference. The gardens between Barcelona and the fort, and alſo within the walls, are watered in the ſame manner; the water is let into every little bed, in the ſame way as I have already deſcribed. They are crowded with crops, and kept in moſt beautiful order; thoſe in and cloſe to the town, ſcattered with mulberry-trees. But in the diſtrict of which I am ſpeaking at preſent, among the hemp and lucern, neither vine, olive, nor mulberry. Theſe watered lands belong generally to proprietors who live in Barcelona, and are let at 30 to 40 Spaniſh livres the journal.

The valley, in its wideſt part, is three miles broad. Here it lets at 34 Spaniſh livres a year the journal, and ſells from 600 liv. to 1000 liv.; each of theſe livres being about 54*ſ.*: (1000 Spaniſh livres makes 2700 French ones). Taking the medium, or 800 liv. and the French livre at 10½d. this makes the price of a journal 90l. 2s. 6d.; and the rent of it 4l. The groſs rent of the land, therefore, pays nearly 4½ per cent.; but whether this is clear rent, the tenant paying all taxes, and doing the ſmall repairs of his houſe, &c. or whether there are deductions on theſe accounts, are queſtions which were neither forgotten nor reſolved. To ſhew the quick ſucceſſion of their crops, they have corn in ſtooks on the borders of ſome of the fields, and the land ploughed and ſown with millet, which is already nine inches high. Many bleaching grounds.

Advancing—the irrigated land lets from 24 to 40 Spaniſh livres: that not irrigated, at 15 liv. Water, therefore, here more than doubles the rent of the land; and in other places, we have found the difference yet greater. The ſoil all the way a red and brown deep friable loam, with a ſufficient adheſion for any crops. They ſow French beans after hemp, and then ſow wheat.

At Ballalo, two hours from Barcelona, we meet with the firſt vineyards, but the hills here come down to the ſea; and where they do not, the vale is not more than half a mile wide. Lycium in the hedges; ſome few mulberry-trees. Oranges in the gardens; a few palm-trees, with vines around them.

A journal of watered hemp, produces from 10 to 12 quintals; if not watered, the product much inferior; the price, 14 to 17 Spaniſh livres the quintal, or 35s. Engliſh, which makes 19l. 5s. an acre. This is, however, to be underſtood of a very fine acre. The mountains are at half a mile diſtant, and partly

partly cultivated to the top. All the way incloſed, and the men mending gaps in their hedges.

Every ſcrap of flat land well watered, from wells and reſervoirs; the hill covered with vines.

Land, near Canet, well watered, ſells for 500 Spaniſh livres the journal; vineyards for 300 liv. They give, in good years, to 12 charges. Unwatered land, 100 to 150 liv.

Enter a flat vale, half a mile broad, not watered. Hemp, very poor; maiz, ſeven feet high. Vineyards, under regular plantations of olives; corn cut, in ſtooks, and the land ploughed. A journal ſells for 200 liv. and further on, where irrigated, for 1000 liv. which is an aſtoniſhing difference.

While the mountains and waſte parts of the province preſent an unfavourable proſpect, the watered diſtricts are, on the contrary, ſcenes of moſt exuberant fertility. To a perſon, from the north of Europe, there can hardly be a more ſtriking ſpectacle than the effect of watering in theſe ſouthern climates; it converts an arid ſtoney waſte, which would yield nothing but vines and olives, and on which every ſort of grain would hardly return the ſeed, at once into fields, pregnant with the richeſt harveſts; on ſuch ſoils, it gives almoſt the whole value of the land; and on the richeſt, it raiſes it, at the leaſt, double; and, in ſome inſtances, five times. It enables the cultivator to have a ſucceſſion of crops, more important than any thing we know in the north. The reaping one crop is but the ſignal for immediately putting in another; in doing which, they exert themſelves with the utmoſt activity; ploughing univerſally as ſoon as the corn is cut; and are, by this means, enabled to have conſtantly two crops a year. The extreme fertility of theſe lands has, however, led many travellers into great or ignorant exaggerations; they have aſſerted, that the land yields many crops at the ſame time, one under another, which is both true and falſe. It is fact, that corn, wine, oil, and ſilk, are produced by the ſame field, in ſome few inſtances; but it is not from hence to be concluded, that the goodneſs of the land, or the importance of irrigation, is at all ſhewn by that circumſtance. The fact is, that it is impoſſible to raiſe one crop under another, without loſing in one nearly as much as you gain in the other; the olive, being a large tree, cultivation may be carried on under it, but the crop gained is poor, and ſhews, that exactly in proportion to the ſhade s the injury ſuſtained by the produce which is ſhaded. If the trees are thick, the corn is hardly worth reaping; it is the ſame in other caſes, and I was well convinced, from viewing their grounds with this deſign, that the ſoil can carry,

carry, profitably, but one crop at a time; ſeveral may be crowded on it, but nothing is gained; with graſs under trees, this is not the caſe ſo much in a hot climate; but even graſs is damaged, and it is not the queſtion, at preſent, as they have none. A country to be ſupported, and in a hot climate, without meadows or paſtures, ſounds very ſtrange to Engliſh ears, and it is among the curious circumſtances of this part, and I am told of the reſt of Spain. If they applied to graſs the land that is proper for it, they could not poſſibly have bread to eat; ſtraw here is given inſtead of hay, and entirely ſupplies its place, and the oxen and mules, which we ſaw, did not ſhew in the leaſt, by their looks, any deficiency in nouriſhment. Lucern is not at all common through the interior part of the province, and where they cultivate it, it is uſed green. Maiz is ſometimes ſown merely for its herbage, as it might be, I believe, profitably in England, late in the ſpring, to avoid our froſts; it is one of the moſt nouriſhing plants in the world.

The conſequence of water being ſo apparent in the province, I could not but attend particularly to their exertions in conducting it, and I concluded, that not one acre in twenty, perhaps in forty, is watered, that might be. In the flat vales, where canals of irrigation are made, at a ſmall expence, a very good, though by no means a complete, uſe is made of them; but on the declivities of the mountains, it is neceſſary to erect a mound of ſolid maſonry acroſs the river, and to cut the canal partly out of rocks, and to ſupport it by walls of ſtone, as I have ſeen in France; and having thus diverted a large portion of the water of a river, to carry it on its level, along the ſide of the mountain as far as it will go; ſuch exertions demand a much greater capital, than is to be found upon the lands of Catalonia: it could be done only by a great lord, who knew the importance of ſuch undertakings, who reſided on his eſtate, and whoſe income was ſpent in ſomething elſe than the taſte and pleaſures of a capital. But leaving ſuch exertions to individuals, who either have not the money, or not the will to employ it, is to perpetuate waſtes. It is the King only who can make thoſe efforts; a monarch, who ſhould be determined to improve his kingdom, would preſently find the means of doing it. The importance of water is ſo well known, that if a canal is made to conduct it, the proprietors, or farmers of the lands below, would readily and ſpeedily make uſe of it, paying proportionably for the quantity they took; this is the ſyſtem in Lombardy, and the effect is great. It would be the ſame in Catalonia, but the capital, for the great work of the canal, muſt probably be ſupplied by the king, if not the whole, at leaſt a conſiderable portion. Such money ſhould be lent to undertakers, at a moderate intereſt. Exertions of ſuch a nature, with a proper general attention given to theſe objects, would make them

them faſhionable among the great lords of the kingdom, and fertile provinces would ſoon be created out of barren and deſolate waſtes. Arbitrary power has been exerted for ages, in efforts of barbarity, ignorance, and tyranny; it is time to ſee it employed in works, that have the good of mankind for their aim. A beginning, and a very good one, is made in the conſtruction of ſome great roads, on a ſcale of true magnificence, which is never exhibited with ſuch effect, as in works of public utility; and whenever the importance of cultivation is well underſtood in Spain, and the right means of advancing it clearly analyzed, irrigation will then receive an attention that has not, hitherto, been given. Such is the neceſſity of water, for various productions in this climate, that rivers ought to be no more than infinitely multiplied channels, and collected in one ſtream only, as a reſervoir for freſh, and repeated deviations.

SHEEP.

ON the northern ridge of the Pyrenees, bearing to the weſt of Bagnere de Luchon, are the paſtures of the Spaniſh flocks. This ridge is not, however, the whole; there are two other mountains, in a different ſituation, and the ſheep travel from one to another as the paſturage is ſhort or plentiful. I examined the ſoil of theſe mountain paſtures, and found it in general ſtoney; what in the weſt of England would be called a *ſtone braſh*, with ſome mixture of loam, and in a few places a little peaty. The plants are many of them untouched by the ſheep: many ferns, narciſſus, violets, &c.; but burnet *(poterium ſanguiſorba)*, and the narrow-leaved plantain *(plantago lanceolata)*, were eaten as may be ſuppoſed, cloſe. I looked for trefoils, but found ſcarcely any: it was very apparent, that ſoil and peculiarity of herbage had little to do in rendering theſe heights proper for ſheep. In the northern parts of Europe, the tops of mountains half the height of theſe, for we were above ſnow in July, are bogs; all are ſo, which I have ſeen in our iſlands, or at leaſt, the proportion of dry land is very trifling to that which is extremely wet: here they are in general very dry; now a great range of dry land, let the plants be what they may, will in every country ſuit ſheep. The flock is brought every night to one ſpot, which is ſituated at the end of a valley on a river, and near the port or paſſage of Picada: it is a level ſpot ſheltered from all winds. The ſoil is eight or nine inches deep of old dung; not at all incloſed, and, from the freedom from wood all around it, ſeems to be choſen partly for ſafety againſt wolves and bears. Near it is a very

large ſtone, or rather rock, fallen from the mountain. This the ſhepherds have taken for a ſhelter, and have built a hut againſt it; their beds are ſheep-ſkins, and their doors ſo ſmall that they crawl in. I ſaw no place for fire; but they have it, ſince they dreſs here the fleſh of their ſheep; and in the night ſometimes keep off the bears, by whirling fire-brands: four of them belonging to the flock mentioned above, lie here. Viewed the ſheep very carefully, and by means of our guide and interpreter, made ſome inquiries of the ſhepherds, which they anſwered readily, and very civilly.

A Spaniard, at Venaſque, a city in the Pyrenees, gives 600 liv. French, (the livre is 10½d. Engliſh), a year, for the paſturage of this flock of two thouſand ſheep: in the winter he ſends them into the lower parts of Catalonia, a journey of twelve or thirteen days; and when the ſnow is melted enough in the ſpring, they are conducted back again. They are the whole year kept in motion, and moving from ſpot to ſpot, which is owing to the great range they every where have of paſture. They are always in the open air, never houſed, or under cover, and never taſte of any food, but what they can find on the hills.

Four ſhepherds, and from four to ſix large Spaniſh dogs, have the care of this flock; the latter are in France called of the Pyrenees breed; they are black and white, of the ſize of a large wolf; a large head and neck; armed with collars ſtuck with iron ſpikes; no wolf can ſtand againſt them; but bears are more potent adverſaries; if a bear can reach a tree, he is ſafe, he riſes on his hind legs, with his back to the tree, and ſets the dogs at defiance. In the night, the ſhepherds rely entirely on their dogs; but on hearing them bark, are ready with fire-arms, as the dogs rarely bark if a bear is not at hand. I was ſurpriſed to find that they are fed only with bread and milk. The head ſhepherd is paid 120 liv. a year wages, and bread; the others, 80 liv. and bread. But they are allowed to keep goats, of which they have many, which they milk every day; their food is milk and bread, except the fleſh of ſuch ſheep or lambs as accidents give them. The head ſhepherd keeps on the mountain top, or an elevated ſpot, from whence he can the better ſee around, while the flock traverſes the declivities. In doing this, the ſheep are expoſed to great danger in places that are ſtoney; for by walking among the rocks, and eſpecially the goats, they move the ſtones, which, rolling down the hills, acquire an accelerated force enough to knock a man down, and ſheep are often killed by them. Examine the ſheep attentively. They are in general polled, but ſome have horns; which in the rams turn backwards behind the ears, and project half a circle forward; the ewes horns turn alſo behind the ears, but do not project; the legs white or reddiſh; ſpeckled faces, ſome white, ſome reddiſh; they would weigh fat, I reckon, on an average, from 15 lb. to 18 lb. a quarter.

quarter. Some tails left long. A few black ſheep among them; ſome with a very little tuft of wool on their foreheads. On the whole, they reſemble thoſe on the South Downs; their legs are as ſhort as thoſe of that breed; a point which merits obſervation, as they travel ſo much and ſo well. Their ſhape is very good; round ribs, and flat ſtraight backs; and would with us be reckoned handſome ſheep; all in good order and fleſh. In order to be ſtill better acquainted with them, I deſired one of the ſhepherds to catch a ram for me to feel, and examine the wool, which I found very thick and good of the carding ſort, as may be ſuppoſed. I took a ſpecimen of it, and alſo of a hoggit, or lamb of laſt year. In regard to the mellow ſoftneſs under the ſkin, which is a ſtrong indication of a good breed, with a diſpoſition to fatten, he had it in a much ſuperior degree to many of our Engliſh breeds, to the full as much ſo as the South Downs, which are, for that point, the beſt ſhort-woolled breed which I know in England; the fleece was on his back, and weighed, as I gueſſed, about 8 lb. Engliſh; but the average, they ſay, of the flock, is from 4 lb. to 5 lb. as I calculated by reducing the Catalonian pound of 12 oz. to ours of 16 oz.; and is all ſold to the French, at 30*ſ.* per lb. French. This ram had the wool of the back part of the neck tied cloſe, and the upper tuft tied a ſecond knot, by way of ornament; nor do they ever ſhear this part of the fleece for that reaſon; we ſaw ſeveral in the flock with this ſpecies of decoration. They ſaid that this ram would ſell in Catalonia for 20 liv. A circumſtance which cannot be too much commended, and deſerves univerſal imitation, is the extreme docility they accuſtom them to; when I deſired the ſhepherd to catch one of his rams, I ſuppoſed he would do it with his crook; or probably not be able to do it at all; but he walked into the flock, and ſingling out a ram and a goat, bid them follow him, which they did immediately, and he talked to them while they were obeying him, holding out his hand as if to give them ſomething. By this method, he brought me the ram, which I caught, and held without difficulty.

The mountain paſtures belonging to the Spaniards, not uſed by themſelves, they let to the owners of large flocks, who bring them from the lower part of Catalonia, as with the French mountains; theſe flocks riſe to 4000 ſheep; the rent, in general, being from 5*ſ.* to 7*ſ.* a head, for the ſummer food. Every inhabitant poſſeſſes cattle, which he keeps in the common mountains in what quantity he pleaſes; but others, who do not belong to the pariſh, pay 5*ſ.* to 7*ſ.* a head for the ſheep, and 10*ſ.* for a cow; which diſproportion they explain, by ſaying, that ſheep muſt have a much greater range.

They have good ſheep in various parts of Catalonia, but all are ſent to Saragoſa or Barcelona.

The mountains and waſtes in ſome parts have no ſheep; only goats.

Croſs great waſtes, which in other countries would be ſheep-walks; but none here; for five-ſixths of the ſpontaneous growth are aromatic plants.

See two ſmall flocks of ſheep, exactly like thoſe in the Pyrenees, deſcribed the firſt day of this journey.

A ſmall flock of ſheep, that give 5 lb. or 6 lb. of wool each.

Several ſmall ſheep-folds.——Such notes as theſe, ſhew how few they are, on compariſon of what they ought to be.

In travelling over the lower mountains, after quitting the higher Pyrenees *, the deficiency of ſheep ſtruck me very much; the climate is too dry to think of a luxuriant vegetation of graſs; but if the roſemary, lavender, and other aromatic uſeleſs plants were deſtroyed, and the land, by cultivation, properly adapted, was to be laid down to ſuch plants as would feed ſheep, fine paſtures might not be gained, but much valuable ſheep-walk would be created, and the quantity of wool increaſed an hundred fold. Such a ſyſtem would unite well with olives, which might be thinly ſcattered over ſuch improvements. To import immenſe quantities of ſheep from France, and to take no ſteps to increaſe them at home, is a blind conduct, eſpecially when it is conſidered, that in a proper ſyſtem, they cannot be increaſed, without being at the ſame time, the means of improving freſh land.

Produce of the Kingdom of Valencia in 1787.

	Reals de Vellon.		English Money. £.	s.	d.
Silk, 2,000,000 lb. at 60 *reals*, - -	120,000,000	-	2,000,000	0	0
Hemp, 25,000 *quintals*, at 160 *reals*, -	4,000,000	-	66,666	13	4
Flax, 30,000 *quintals*, at 200 *reals*, -	6,000,000	-	100,000	0	0
Wool, 23,000 *quintals*, at 160 *reals*, -	3,680,000	-	61,333	6	8
Rice, 140,000 *cargas*, at 150 *reals*, -	21,000,000	-	350,000	0	0
Oil, 10,000 *quintals*, at 180 *reals*, -	1,800,000	-	30,000	0	0
Wine, 3,000,000 *arrobas*, - -	84,000 000	-	1,400,000	0	0
Dry raiſins, 60,000 *quintals*, at 40 *reals*,	2,400,000	-	40,000	0	0
Figs, 60,000 *quintals*, at 32 *reals*, -	1,920,000	-	32,000	0	0
Dates and palms, - - -	1,200,000	-	20,000	0	0
		£.	4,100,000	0	0

* There is no line of boundary to be fixed, with any preciſion, to the Pyrenees; I am inclined to think, that all the mountains we ſaw, Montſerrat perhaps excepted, are branches of that ſtupendous chain, uniting in ſome direction. The whole mountainous part of the province, that is, eighteen-twentieths of it, is properly the Pyrenees.

Prices

Prices at Madrid, 1788.

	Average.	Eng. Money. s.	d.
Beef, 14 to 15 *quartos* per lb.	15 *quartos.*	0	3½
Veal, 24 to 30 *quartos* per lb.	27	0	6½
Mutton, 15 *quartos* per lb.	15	0	3½
Freſh pork, 15, 17, to 20 *quartos* per lb.	17	0	4½
Salted pork, 17 to 20 *quartos* per lb.	17	0	4½
Ham, 18 to 22 *quartos* per lb.	20	0	5
Tallow candles, 15 *quartos* per lb.	15	0	3½
Soap, 16 *quartos* per lb.	16	0	4
Butter (Mantica de Flandes), 8 *reals* per lb.	8 *reals.*	2	8
Goat's milk, 6 to 7 *quartos* per *el quarto*,	7 *quartos.*	0	1½
Mancha cheeſe, 18 *quartos* per lb.	18	0	4½
Turkey, 12, 20, to 45 *reals* a piece,	25 *reals.*	8	4
Fowl, 8, 11, to 14 *reals* a piece,	11	3	8
Hare, 5 to 9 *reals* a piece,	7	2	8
Rabbit, 5 to 8 *reals* a piece,	6	2	0
Partridge, 4 to 8 *reals* a piece,	6	2	0
Pigeons, 5 to 6 *reals* a piece,	5	1	8
Eggs, 21 to 42 *quartos* a dozen,	31 *quartos.*	0	7½
Potatoes, 4 to 6 *quartos* per lb.	5	0	1½
Garvanzos (large peaſe), 10 to 12 *quartos* per lb.	11	0	2½
Wheat flour, 13 *quartos* per lb.	13	0	3½
Rice, 11 to 12 *quartos* per lb.	11	0	2½
Brandy, 2 *reals* per *el quarto*,	—	0	8
Common wine, 26 to 28 *r.* the *arroba* (about 18 bottles),	27 *reals.*	9	0
Valdefunas wine, 36 *reals* per *el quarto*,	—	12	0
Charcoal, 4 *reals* and 5 *quartos* the *arroba*,	—	1	5½
Wood, 3 *reals* the *arroba*,	—	1	0
Common bread, 6 *quartos* per lb.	—	0	1½
Pan candial, 6 *quartos* per lb.	—	0	1½
Common oil, 15 *quartos* per lb.	—	0	3½
Valencia oil, 4 *reals* per lb.	—	1	4
French oil, 7 *reals* per lb.	—	2	4
Coffee, 34 *quartos* per lb.	—	0	8½
Sugar, 30 to 38 *reals* per lb.	34 *reals.*	11	4
Chocolate, 6, 8, to 10 *reals* per lb.	8	2	8
Tea, 11 *quartos* per oz.	—	0	2½
Hair-powder, 2 *reals* per lb.	—	0	8

MAJORCA.

MAJORCA.

SOME circumſtances relating to this iſland, which I procured from good authority at Barcelona, and at Bayonne, from Spaniards who had reſided many years in it, I think too intereſting to be omitted, as they may ſerve, if for no other purpoſe, at leaſt, to point the inquiries of ſome future traveller, who ſhall have an opportunity of viſiting that iſland.

Climate.

The moſt delicious that has been experienced by various perſons well acquainted with France, Italy, Spain, and Portugal; and reſulting in a good meaſure from the variety of the face of the country, which riſes from ſome beautiful plains to gentle ſlopes, which, after many undulations of ſurface, finiſh in the mountains. In the greateſt heats of July and Auguſt, the hills preſerve the temperature almoſt vernal: nor are the heats ever ſuffocating in any part. The winters, except on the higheſt parts of the mountains, are mild and pleaſant, as may be gathered from circumſtances of vegetation, almonds bloſſom in December, are in full bloom in January; and many wild flowers are in all their beauty quite through the year. Spinnage, green peaſe, beans, lettuce, endive, cellery, &c. are in perfection the year round. In the depth of winter, ice is ſeen to the thickneſs of one-tenth of an inch, but melts before the day is much advanced. No ſharp cutting winds are ever felt, either in winter or in ſpring; and a perſon who reſided there ſixteen years, never ſaw a fog. The houſes have no chimnies; but when artificial warmth is wanted, almond-ſhells are burnt in *braſieres*. This extremely agreeable temperature of the climate, was confirmed to me by General Murray and his Lady, who reſided there many years; and the former mentioned a circumſtance, which ſhews how erroneous it would be to judge of any climate by the latitude; Leghorn is nearly in the ſame parallel, but the ſevereſt cold he ever felt, in March, was at that place, where, in waſhing, the water became ice before a towel could be well dipped in it.

Culture and Products.

The hills are formed into terraces, and planted and cultivated with great attention. Olives are planted, and under them wheat ſown; in the flats, many almonds and mulberries. Oranges and lemons are in ſuch quantities, that they export many to France. They are in great profuſion, and the moſt beautiful to

to be imagined. The mountains of Soleya are famous for peaches, and all ſorts of fruit. Hedges of pomegranates are attended with medlar and quince trees, alternately on one ſide, and on the other mulberries; but the beſt fence is the prickly pear, the fruit of which is ripe in July, which is eaten, both leaf and fruit, by cattle, and are ſupported on it in fine order, when other things fail in the heat. Muſk and water melons are in great perfection.

Sugar-canes do well; but no ſuch thing as rice, as neither ſwamp, marſh, nor bog.

Irrigation is well underſtood, and much practiſed.

A common courſe of crops,

1. Wheat.
2. Barley.
3. Beans.
4. Peaſe.

Capers (which are a weed), come up in the wheat ſtubbles, which give a crop; then the ſtubble and caper-buſhes are burnt, and the barley and legumes ſucceed, and after thoſe artichokes.

They plough with a pair of oxen, or mules.

The proprietors in general keep the land in their own hands.

Living.

This iſland, which, by every account, might be made a paradiſe, is one of the cheapeſt ſpots in Europe to live in; upon an income of 150l. a year ſterling, men of the better ſort live very comfortably, and bring up a family. Every vegetable production for the table, with all kinds of fruits, are not only in uncommon profuſion, but excellent of their ſorts. Poultry no where better; turkies are kept in great droves, and driven to feed on berries, as regularly as ſheep to paſture; they are fattened on myrtle-berries, and are not only of a delicious flavour, but a great ſize, even to 36 lb. weight. Mutton is excellent; ſome ſheep are ſo ſmall from the iſland of Yuvica, that three legs are ſometimes ſerved up in one diſh.

All theſe circumſtances united, ſeem to point out this iſland as an excellent winter reſidence for thoſe who can no longer reſort to Nice or Hyeres, and is probably a better climate than either of them.

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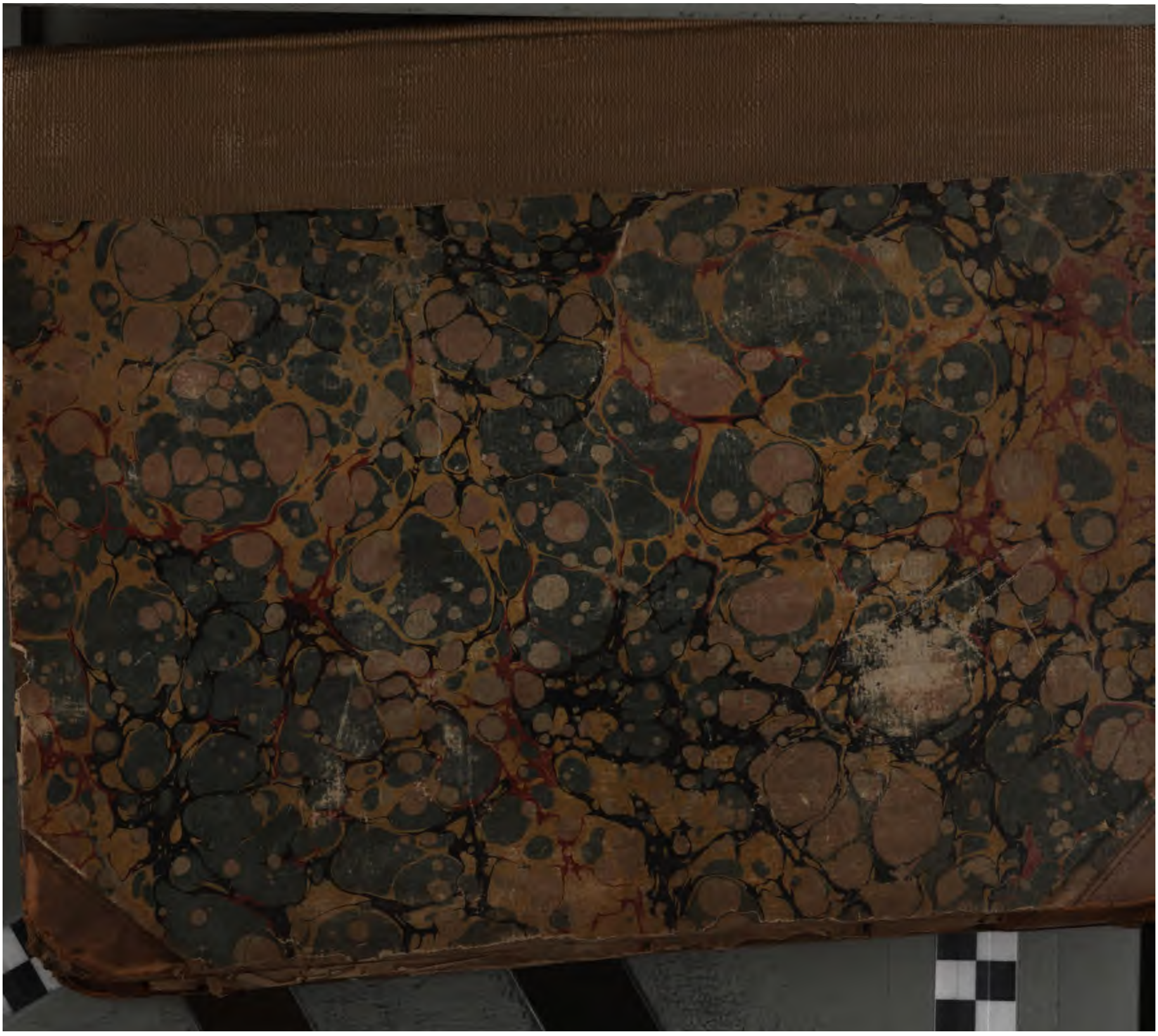
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